THE MEDICAL JOURNAL OF AUSTRALIA

VOL. II.—23RD YEAR. SYDNEY, SATURDAY, OCTOBER 31, 1936. No. 18.

Table of Contents

ORIGINAL ARTICLES— PAGE.

Observations on Hemiplegia, by D. W. CARMALT JONES, D.M., F.R.C.P. 583
The Treatment of Tuberculosis of Bones and Joints, by A. R. HAMILTON, M.B., Ch.M., M.Ch.Orth. 590
Static Foot Trouble, by E. B. M. VANCE, M.B., Ch.M., M.Ch.Orth. 593
Indications for Thoracoplasty in Pulmonary Tuberculosis, by HENRY SEARBY, B.Sc., M.B., M.S., F.R.C.S., F.R.A.C.S. 596
Symptoms Preceding Suicide, by S. J. MINOGUE, M.B., Ch.M., Diploma in Psychiatry 598

REPORTS OF CASES—

Prosthetic Appliance for Atresia Palati in an Edentulous Patient, by ARTHUR AMIES, D.D.Sc., F.R.A.C.S. (L.O.), and DAVID BAGHEL, B.D.Sc., D.D.S. 600

REVIEWS—

A Book on Heart Disease for the Clinician 601
Infra-Red Rays in Surgery and Medicine 601
Neuropathology 602
Psychotherapy 602

LEADING ARTICLES—

Chronic Rheumatic Diseases 603

CURRENT COMMENT—

The Ultimate Prognosis in Encephalitis Lethargica 604
Recurrent Hyperthyreoidism 605

ABSTRACTS FROM CURRENT MEDICAL LITERATURE— PAGE.

Bacteriology and Immunology 606
Hygiene 607

BRITISH MEDICAL ASSOCIATION NEWS—

Medico-Political 608
Nominations and Elections 612

CORRESPONDENCE—

Rodent Ulcer 612
Pink Disease 612
Asthma and Tuberculosis 612
Manipulative Surgery 612
Tube Lost in an Empyema Cavity 612

UNIVERSITY INTELLIGENCE—

The University of Sydney 613

PROCEEDINGS OF THE AUSTRALIAN MEDICAL BOARDS—

New South Wales 613

NOTICE 613

OBITUARY—

Herman Femor Lawrence 614
Arthur Youl Nankivell 614

DIARY FOR THE MONTH 614

MEDICAL APPOINTMENTS VACANT, ETC. 614

MEDICAL APPOINTMENTS: IMPORTANT NOTICE 614

EDITORIAL NOTICES 614

OBSERVATIONS ON HEMIPLEGIA.

By D. W. CARMALT JONES, D.M. (Oxford), F.R.C.P. (London),
Dunedin, New Zealand.

THIS paper embodies a study of some of the minor events in hemiplegia, as observed in about fifty unselected cases, chiefly at Dunedin Hospital. Seventeen of the patients died, and thirteen were examined *post mortem*; five of the cases were due to thrombosis, four to hæmorrhage, and one each to embolism, tuberculous meningitis, exploration for cerebral tumour, and intracranial syphilitic aneurysm. Judged clinically, there were twenty-nine cases of destructive vascular lesions, seventeen of thrombosis, eight of hæmorrhage and four of embolism. There were ten cases of hemiplegia which showed at first all the signs of organic disease, but which cleared up completely in the course of a few days; these must have been due to transient vascular disturbances and not to destructive lesions. One case was diagnosed as due to secondary carcinoma. There were also two cases of lesions of the postero-inferior cerebellar or some nearby-situated artery.

Cerebral Hæmorrhage with Survival.

Many people believe that patients never survive cerebral hæmorrhage, but my colleague, Professor E. F. D'Ath, informs me that he occasionally finds evidence of old hæmorrhage *post mortem*. Bleeding can be diagnosed with certainty during life only when blood is present in the cerebro-spinal fluid on lumbar puncture. The following case of survival is sufficiently rare to prove that the contrary is the rule.

CASE I.—G.N., a male, aged fifty-five years, a storeman, while at work, which involved heavy lifting, felt giddy and his legs gave way. He found that he had lost power in his left arm and leg; but he did not lose

consciousness. He was admitted to hospital and was able to give an account of himself. In a few days he became very dull and suffered intensely from headache, which was relieved by lumbar puncture, but recurred; it subsided in the course of a week or two. The cerebro-spinal fluid contained blood. The blood pressure was very high, ranging from 230 millimetres of mercury (systolic) and 150 (diastolic) to 190 (systolic) and 120 (diastolic). The pressure of the cerebro-spinal fluid was also high, sometimes reaching 300 millimetres of water; several times fluid was withdrawn till the pressure fell to 90 millimetres of water, which gave relief. During this manœuvre the blood pressure once fell from 230 and 130 to 190 and 120 millimetres of mercury. There was no retention of nitrogen in the blood (the total non-protein nitrogen content was 30 milligrammes per 100 cubic centimetres). In time there was slight but useless recovery of movement, and after six months he was discharged, unable to walk without help. This was a case of essential hypertension with cerebral hæmorrhage; hemiplegia with survival but without recovery. The retention of consciousness in cerebral hæmorrhage is unusual.

Unilateral Œdema, Cyanosis and Arthritis.

Œdema on the paralysed side is a common enough event in hemiplegia, but receives little notice in English text-books. It is of considerable interest as showing peripheral vasomotor disturbance in a central lesion. My attention was drawn to such vasomotor disturbance by the following case.

Case II.—R.W., a male, aged fifty-two years, a syphilitic, was admitted to Dunedin Hospital with severe right hemiplegia; recovery was very imperfect and he left the hospital, able to walk but with his right arm useless. He was readmitted a year later, very ill, with congestive heart failure; the right (paralysed) arm was much more cyanosed than the left; the fingers of the right hand were clubbed, the left not. He recovered from the heart failure, the clubbing disappeared, and as his finger nails grew the bases came up of the ordinary pink colour, while the distal parts were deeply pigmented, as if stained by cigarette smoking. The vasomotor disturbance was much greater on the hemiplegic side.

After this observation vasomotor disturbance was looked for in all cases, with the following results: well-marked œdema was found in 11 cases and slight œdema in 13 cases, and œdema was absent in 25; that is, œdema was present in half the cases where looked for. It may be so slight as to be found only on close examination, for instance, of the mark made by the wedding ring. In two other cardiac cases the œdema, though bilateral, was much more marked in the paralysed limbs and also in the lumbar region of that side. Curiously, only one case of arthritis, in the paralysed arm, occurred in the series, and in one other there was limitation of shoulder movement from adhesion (Figure I).

In this study no light has been shed on the cause of the vasomotor symptoms. They do not depend on the severity of the lesion. Vasomotor disturbance may occur in cases of quite transient paralysis; on the other hand, eight, or one-half, of the fatal cases showed it, four extensively and four slightly. Sometimes it takes a few days to appear, and in cases of recovery it generally recedes with returning power. In two cases of permanent paralysis it has persisted for at least a year. No gross *post mortem* change was found which was in any way peculiar to the cases showing this vasomotor disturbance.

Diminished Rigor Mortis on the Paralysed Side.

In cases in which death occurred during the period of flaccid paralysis the onset of *rigor mortis* has been found to be delayed in every case examined. In two the paralysed limbs were quite flaccid when the sound ones were quite stiff; in three others the rigidity was definitely less on the paralysed side. (*Post mortem* examinations are generally held between twelve and twenty-four hours after death.)

Unilateral Variations in Sweating, Temperature and Blood Pressure.

Occasionally cases occur in which the paralysed side is pouring with sweat and the healthy side unaffected; but as a rule the variations are slight and inconstant. A few attempts were made to estimate the difference by a simple method: a piece of cotton rag, 20·0 centimetres by ten centimetres (eight inches by four inches) and weighing two

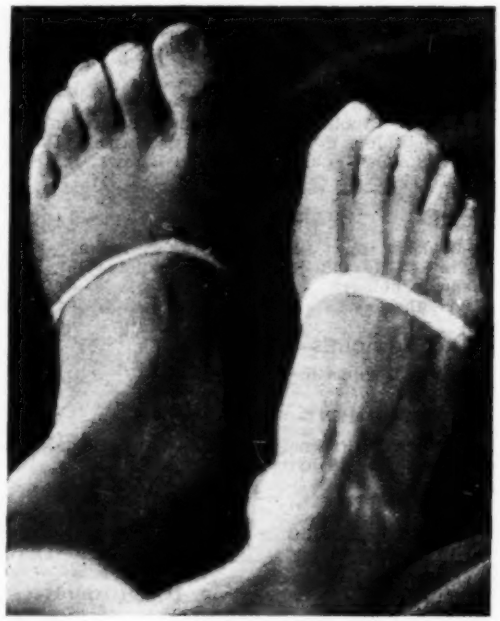

Figure I.
Unilateral œdema in left hemiplegia.

grammes, was folded once, laid on the abdomen and covered with tinfoil secured with plaster. In a normal person, after sitting in the sun for two hours in ordinary clothes, two grammes of sweat were thus discovered. Simultaneous observations were then made on both sides of the body in a few cases of hemiplegia; in one case the sound side gave 1·2 grammes and the paralysed 1·0 gramme; in a second there was no difference, and in a third there was a little more from the paralysed side. Further observations did not seem to be worth while. Similar slight and inconstant variations were found in temperature and blood pressure and need not be recorded.

One rather curious observation was made while taking blood pressures, perhaps a variant of the common "withdrawal" reflex obtained on taking the plantar response on the paralysed side. In one case, when the cuff was inflated round the paralysed arm, which was very insensitive, it was involuntarily raised in the air and it was impossible to measure the pressure. Similar movements have been found in three other patients; in one of them voluntary movement was restored at once, in a second it was regained next day; the third remained paralysed.

High Blood Pressure with Transient Hemiplegia and Often with Migraine.

Attention was drawn to the syndrome of high blood pressure, transient hemiplegia and migraine, by the following case.

CASE III.—Mrs. H., aged sixty-four years, had been quite healthy till the age of sixty, when she began to suffer from *angina pectoris*; she was found to have high blood pressure. She also suffered from unilateral headache with scintillating scotoma, ending in vomiting—typical migraine. On one occasion she had an attack of it, retired to bed and vomited. She fell asleep and on waking found that she had lost all sensation and power of movement on the left side and could not speak. Cerebral hæmorrhage was suspected; but the arm began to recover in a few hours. On admission to hospital next day there was only weakness of the left side of the face and the left arm and leg, with hemianalgesia and slight œdema, increased deep reflexes and an extensor plantar response on the left. In two days the paralysis had disappeared, though there were still slight reflex changes.

The following case was in the hospital at the same time.

CASE IV.—Miss C., aged sixty-six years, was known to have had high blood pressure (240 and 130) for a long time. When sitting quietly reading, she found the book getting heavy, and soon afterwards she slipped from her chair to the floor and lay there, with complete loss of power, but not of consciousness. She was admitted to hospital next day with partial left hemiplegia and the usual reflex changes. She recovered completely in three days. She too was subject to headaches, described vaguely as right-sided, and with black spots before the eyes.

There were five other similar cases in the series, and two of different ætiology may be put beside them.

CASE V.—T.B., a girl, aged four years, was suffering from tuberculous meningitis. She had a series of Jacksonian fits which left her hemiplegic; the fits did not return, and the hemiplegia disappeared in two days. No examination was permitted after her death.

CASE VI.—Mrs. S., aged fifty-five years, had cerebral syphilis. She was admitted to hospital unconscious and suffering from repeated Jacksonian fits. The fits lasted for three days; in the intervals between them she was completely hemiplegic. Her fits ceased, power was restored, and no reflex changes could be detected in a week's time.

It is clear that there was no destructive lesion in any of these cases.

Among "organic" lesions it is probable that the prognosis is better in cases of embolism than in thrombosis or hæmorrhage, as in the following cases.

CASE VII.—Mrs. W., aged sixty-seven years, had advanced cardiac disease. She was admitted with right hemiplegia and some degree of aphasia. Embolism was diagnosed and she was thought to have made an excellent recovery when she could knit in a month's time. Recovery of prescribed movements may be very good, but the absence of apraxia, especially after initial aphasia, was very fortunate.

CASE VIII.—M.S., a young woman with mitral stenosis, was admitted unconscious and hemiplegic. She recovered all movements in about a month's time, but could neither sew nor write; this apraxia continued.

The high-blood-pressure patients made much more rapid recoveries than the two last. Such transient hemiplegia can hardly be other than vascular in origin, and the alternatives appear to be arterial spasm or localized œdema. Some cases of migraine and also of *angina pectoris*[1] have been studied which were thought to be allergic in origin and which responded to injections of adrenalin; and allergic manifestations are either spasmodic, as in asthma, or exudative, as in urticaria.

Variations in Sensation.

The only sensation systematically investigated was that of superficial pain, tested by the response to pin-prick. Many of the patients cannot appreciate touch, or at least cannot describe their sensation to it, and sensibility to pin-prick can be estimated in many unconscious patients, who are quite unresponsive when pricked on the paralysed side, but who flinch or raise the hand when pricked on the sound side.

Some degree of hypalgesia is almost always found in recent cases of hemiplegia, strictly limited by the mid-line of the body and accompanied by diminution or loss of the corneal reflex. Blowing into the eye on the paralysed side produces no response; but blowing into the other eye causes blinking of both eyes. It may be noted in passing that these are protopathic sensations, which are commonly supposed to be appreciated in the thalamus; but they are certainly abolished in capsular lesions interrupting impulses on the way to the cortex.

The following case is that of a particularly intelligent and cooperative woman, in whom analgesia persisted long after the motor signs of hemiplegia had almost disappeared.

CASE IX.—Mrs. B., aged forty-seven years, had been for some years subject to headaches, which were relieved by epistaxis. Nine months before admission she had suffered from a slowly ingravescent right hemiplegia. The arm was useless and the leg weak; she could not stand. The face and speech were affected (she appears to have been aphasic). Sight was also affected, with blurring and diplopia. There was œdema of the hand and arm. Recovery began in three weeks, and nine months later the hemiplegia was represented only by slight weakness, increased jerks and some degree of apraxia. She could not write or sew as formerly. There was no recognizable increase in tone.

Sensation was much more affected. She volunteered that she had burnt herself without pain, and the skin was found highly insensitive to pain and heat, less so to cold; two points had to be several inches apart before they could be recognized as separate, and the sense of pressure on muscles and the sense of position were both defective. On the other hand, her stereognosis, as judged by the recognition of coins, was intact. In this case again the sensations generally attributed to the thalamus were the most affected.

In the following case sensory loss preceded paralysis.

Case X.—W.R., a male, aged fifty-three years, whose systolic blood pressure was 200 millimetres of mercury, complained of loss of sensation on one side rather than loss of strength. The loss of sensation seemed to induce incoordination. Later there were loss of position sense and astereognosis. Ultimately he became completely hemiplegic.

As has been noted, homonymous hemianalgesia is the rule in hemiplegia, and if the patient is unconscious and flaccid its presence is generally sufficient to determine the side of the lesion; it may, however, be misleading.

Case XI.—A.D., a male, aged forty-five years, a syphilitic, suffered from intense chronic headache. He became unconscious and was admitted to hospital with general flaccid paralysis. After lumbar puncture the right arm showed a little tone and the right side of the face responded slightly to pin-prick, not the left. A right-sided lesion was suggested; but at a *post mortem* examination an aneurysm the size of a golf ball was found in the left parietal region. Intracranial aneurysms are said to be difficult to localize.

Another case of hemihypalgesia may be compared.

Case XII.—J.P., a male, aged forty-five years, had sustained a fracture in the right frontal region eight years previously. He had been immediately operated upon, with an excellent result. Since then he had had polyuria; he was said to have passed as much as three gallons of urine in a day. He was subject to violent fits, about once in six weeks, associated with thirst, intoxication and complete loss of self-control. There was no hemiplegia nor any change in the cranial nerves, tone or reflexes.

Sensation: On the left there was diminution of sense of pain, touch, heat and cold, and the corneal reflex was reduced. There was no astereognosis, and compass points could be recognized at a smaller interval than on the right. It was inferred that there was some damage to the subthalamic region and to the right thalamus. The sensory loss seemed to be of the character of that in hemiplegia.

Only one case of hemianopia occurred in the series.

Case XIII.—J.R., a male, aged forty-eight years, believed to be suffering from inoperable carcinoma of the stomach, suffered complete homonymous left hemianopia of rather sudden onset. There was slight weakness of the left side of the face and the left arm and leg, with the usual reflex changes, but no change in tone, no sensory change in the skin and no œdema. He was aware of some difficulty with his left limbs, particularly in feeding himself; there was evident incoordination of the motor type, meaning lack of the power to make the limbs perform a required movement.

Athetosis.

Athetosis has rarely been observed. There were two cases of wild, irregular movements, the true "post-hemiplegic chorea", and one of slight but very typical movements of the hand and foot in an old-standing case. In the following case the relatives were unaware of any previous stroke (Figures II and III).

Case XIV.—Mrs. W., aged fifty years, a chronic dyspeptic with high blood pressure, complained of her clumsiness; she could not sew. No movement was lost; but there were hemiplegic reflex changes on the right, and incoordination and a kind of intention tremor occurred when the eyes were shut. Slight athetosis was present.

Observations on the Face.

Upper neurone paralysis or paresis of the face is, of course, the rule in hemiplegia; the teeth cannot be fully shown on the affected side nor the eye closed. It has many times been observed that the eye on the affected side is more widely open than the other, as if, closure being defective, opening

Figure II.
Athetosis in left hemiplegia.

goes on to excess. It varies from day to day, and no successful photograph has been obtained of it in this series. No change in the size of the pupil has been detected, nor any positive exophthalmos. One wonders if there is a slight over-action of the sympathetic, the cortical control of the facial nerve being in abeyance. The condition is in contrast with that in the following case.

Figure III.
Athetosis in left hemiplegia.

Case XV.—Mrs. C., aged sixty-five years, went to bed much fatigued and woke at 4 a.m. with left hemiplegia. The blood pressure was very high. All movements of the left side of the face and the left limbs could be made, but slowly and with reluctance, though coordination was accurate. The left plantar response was extensor. There

was very strong conjugate deviation of the head and eyes to the right and downwards; very little movement to the left or upwards could be obtained. There was no convergence and the pupils were almost inactive to light; their size was not recorded, but they were not conspicuously large or small. The patient had the "tucked lids" described by Collier,[2] which (together with large pupils) he associated with lesions of the posterior commissure of the mid-brain; but in this case they were not successfully photographed. It was concluded that there was a vascular lesion of the mid-brain on the right. Recovery occurred.

Observations on the Cranial Nerves.

Case XVI.—Mrs. S., aged forty-five years, had had two previous strokes, with complete recovery. At 4 p.m. she fell down unconscious. There was left hemiplegia and blood was observed in the cerebro-spinal fluid. Next morning she was conscious and intelligent. There was paralysis of the left arm and leg. The left side of the face escaped; but there was weakness of the right side of the tongue, the right side of the jaw and the right

Figure IV.
The right eleventh cranial nerve intact.

sterno-mastoid muscle. The diagnosis suggested was that of ruptured aneurysm of a branch of the right postero-inferior cerebellar artery. The hæmorrhage was presumably outside the medulla, but involved the motor fibres of the fifth and the eleventh and twelfth cranial nerves, the pyramidal tract before decussation, and the fillet. Recovery was very rapid and complete and has been maintained for several years.

I have seen two cases of hemiplegia in young persons of about fifteen years. In both the onset was without loss of consciousness, and in one blood was found in the cerebro-spinal fluid. A leaking aneurysm is the probable cause of hemiplegia when it occurs suddenly in such persons and when mitral disease can be excluded. These patients recovered, but recovery is by no means the rule and recurrence is probable.

Figure V.
The sterno-mastoid in left postero-inferior cerebellar artery lesion; eleventh cranial nerve paralysed.

A more definite case of lesion of the postero-inferior cerebellar artery, though without hemiplegia, is the following.

Case XVII.—Miss P., aged thirty-five years, was admitted to the isolation ward with sore throat, nasal speech and the diagnosis of diphtheria. The throat was clear; the left side of the palate was paralysed; the tongue deviated to the left; the left sterno-mastoid muscle was paretic (Figures IV and V), and there were enophthalmos and a contracted pupil on the left (Figure VI). There was no incoordination or crossed anæsthesia. The condition was unchanged on her discharge from hospital and on review some weeks later.

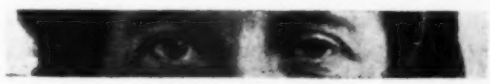

Figure VI.
Exophthalmos and contracted pupil in left postero-inferior cerebellar artery lesion.

Subdural Hæmorrhage.

Case XVIII.—W.J., a male, aged seventy-two years, complained for a few weeks of headache in the early morning, chiefly left-sided, which improved during the day. One

morning the legs were stiff; a few days later he was aphasic. There were doubtful weakness of the left side of the face and slight incoordination of the left hand, double ankle clonus, and extensor responses and a spastic gait. The systolic blood pressure was 140 and the diastolic pressure 80 millimetres of mercury. Rapid deterioration occurred; the patient became unable to walk, progressive weakness occurred, the pulse rate rose, and he died.

Post mortem examination revealed no injury to the skull. There was a large, old-standing subdural hæmorrhage on the left side, with recent additions; the brain was flattened on the left side; there was no hæmorrhage into its substance. The vessels were healthy; there was no aneurysm or atheroma. The case was one of spontaneous subdural hæmorrhage with no recognizable hemiplegia.

Case XIX.—W.W., a male, aged sixty-eight years, had been injured in a motor car accident. There was a hæmatoma of the left side of the forehead, but no evidence of fracture. He was said to be dizzy on turning over on the left side. He was discharged from hospital in ten days and he returned to work three weeks later. After this he had a transient loss of consciousness and fell, injuring his head. After this he suffered from headaches, increasing in frequency and severity, left-sided, frontal and occipital. The left arm and leg were weak and incoordinate. He was readmitted to hospital, irrational, unresponsive and apathetic, falling forward and to the right. There was some irregular nystagmus; there was no papilloedema; the left arm and leg were weak; but the reflexes were unaffected. At lumbar puncture the cerebro-spinal fluid was found to be clear and under a pressure of 180 millimetres of water. Hypertonic saline solution was given intravenously; the mind cleared immediately nd power improved. Two days later, sudden coma ppeared, together with definite hemiplegia and hemi-nalgesia. At lumbar puncture blood was observed; the erebro-spinal fluid was yellow. The patient died. *Post mortem* examination revealed a large right-sided subdural hæmatoma, recent, upon an old one.

This condition is not very common. It was described by Martin[3] before the Section of Neurology of the Royal Society of Medicine in 1931; he based his account on six cases and referred to a paper by Trotter. The condition occurs chiefly in elderly people, and there is often a history of slight trauma—the older the patient, the less trauma is necessary. Bleeding is said to occur from small veins passing from the brain to the dura. A latent period and a period of symptoms are recognized. The former may be of weeks', months' or even years' duration. The symptoms are chiefly drowsiness, mental changes, and headache, going on to coma. Focal symptoms are delayed and curiously slight. Martin distinguishes between local cerebral compression and general intracranial pressure, which in these cases is low, and the cerebro-spinal fluid is normal. Our cases were thus fairly typical.

Discussion.

Points arising out of this study which may be discussed are the question of apraxia in persons recovering from hemiplegia, and the question of cerebral control of the sympathetic as indicated by peripheral œdema and skin changes on the paralysed side, and the transient hemiplegia of vascular origin.

The term "apraxia" is generally used to indicate the loss of skill in acquired movements, which may be present when any desired simple movement can be carried out to order. The patient may lose all skill in writing or sewing. The commonest form of apraxia is that known as "motor aphasia", in which a required word, "watch" or "knife" for instance, is present in the patient's mind when he is shown either of these articles, but he is unable to shape his mouth to say it. The "kinæsthetic memories" which are established as skill and precision of movement are acquired, have been abolished, the patient no longer "knows by the feel" when his organs of speech are rightly disposed to give the required result. A similar loss of kinæsthetic memories for hand movements will abolish the power to write, knit, play on the flute, and so on.

But similar difficulties arise in cases where the sense of position is lost, when the patient is in much the same case as a tabetic, accurate enough when movement is controlled by vision; they are also seen in cases of motor incoordination, leading to a result much like that in cerebellar cases, where the hand makes irregular excursions in performing intended movements with the complaint that "I cannot control it; it will not go to where I want it to go". Slight and often unrecognized athetosis may be equally disabling. All the causes of incoordination are of importance. Little can be done for them; reeducation on Fraenkel's lines should be tried.

Cerebral Control of the Sympathetic Nervous System.

Cerebral control of the sympathetic is not very much discussed in English neurological works, but has received considerable attention in France. Joseph Périsson,[4] working at the Salpêtrière in Paris, has studied the subject very thoroughly, following Vulpian (1875), to whom he pays great tribute. He made a particular study of the temperature, blood pressure, œdema and skin changes, besides muscular atrophy, arthropathies and other matters. In my own study the changes in temperature and blood pressure seemed so slight and inconstant as to be valueless; but Périsson regarded them as fundamental to the whole sympathetic disturbance. In his view, sympathetic disturbance is universal in hemiplegia, varying only in degree; it depends upon a lesion of the pyramidal tract, in which certain fibres—histologically indistinguishable—carry sympathetic impulses from the motor cortex and are relayed in the *corpus striatum*. He recognizes two syndromes: hypothermic and hyperthermic. The hyperthermic state ultimately becomes hypothermic; but the reverse does not occur; the "cold" state, whether it occurs early or late, is permanent.

I shall write of "warm" and "cold" states. In cases which show the "warm" state after the stroke, the sympathetic is paralysed, vasomotor control is relaxed, the small vessels are overfilled, and the skin is warmer than on the sound side; in spite of this relaxation the blood pressure rises (an unusual view), because the vessels contain more blood; high colour of the skin and œdema (if it occurs at all) occur in these cases; œdema occurs when there is some cardiac or renal lesion. As time goes on the medulla assumes vasomotor control and carries it

to excess (sympathetic irritation), so that the "cold" state is induced, with contracted vessels, cold skin and reduced blood pressure. I was unaware of this work during my own study; but the association between œdema, increased warmth and raised blood pressure certainly did not suggest itself, and though œdema was marked in the cases of heart failure, I am surprised to learn that it is limited to cases of heart and kidney disease. Périsson draws analogies between the "warm" state with dilated vessels and flaccid paralysis, and between the "cold" state with contracted vessels and spastic paralysis, and even associates the two pairs, the warm state in flaccid paralysis and the cold state in spastic paralysis. This again has never suggested itself to me. Finally, in eight *post mortem* examinations I was unable to associate lesions of the *corpus striatum* with vasomotor disturbance. In five, the basal nuclei were destroyed; in one of these there was much œdema, in one it was slight, and in three absent. In three cases the basal nuclei were intact; in one of them œdema was absent, and in two it was slight.

Périsson's work is much too careful to be summarily dismissed; but his conclusions are far from obvious. Briefly he postulates a cerebral control of the sympathetic, which passes in the pyramidal tract and is relayed in the *corpus striatum*; sympathetic paralysis occurs in cases of flaccid paralysis, with raised temperature and blood pressure and, if heart or kidneys are defective, with œdema. In spastic paralysis a sympathetic irritation supervenes, by way of the medulla, with the reverse of those symptoms.

Vascular changes also come into the work of Pickering and Hess[5] in a study of the headache induced by histamine; this may have a bearing on migraine and so on the transient hemiplegia which sometimes accompanies it. Critchley and Ferguson[6] describe various types of migraine, among them "vasomotor" and "sympathetic" types, the vasomotor headache being due, in their opinion, to localized intracranial œdema, and the sympathetic to spastic contraction of the cerebral arteries with subsequent relaxation.

Barber[7] insists that "water retention" is essential to migraine. Horwitz[8] reports that Collier always postulated swelling of the brain therein; but Douthwaite[9] quotes Critchley as saying that in migraine the pressure of the cerebro-spinal fluid is low, which would not occur if the brain were swollen. One has to note, however, the low pressure in subdural hæmorrhage, with marked increase in the intracranial contents. Pickering and Hess have studied the headache produced by injection of histamine. They localize this pain in the dura, in parts near large arteries; it depends on the trigeminal nerve (it is absent if the Gasserian ganglion has been removed) and not on the sympathetic (it occurs if the inferior cervical and second dorsal sympathetic ganglia have been removed). After the injection there is a fall of blood pressure and cerebral vaso-dilatation occurs, with a rise in the pressure of the cerebro-spinal fluid. At this stage there is no headache. Soon the vaso-dilatation ceases; the pressure of the cerebro-spinal fluid falls, and with the recovery of blood pressure—only to normal—the pain begins; the fall in cerebro-spinal fluid pressure, which can be prevented, does not affect it. They go no further than to say that the pain may be due to the swelling of perivascular tissues or the distension of meningeal arteries. If these observations can be transferred to migraine—and the writers do not suggest that they can—a migrainous headache may be the aftermath of some vascular disturbance and the vessels and pressures may have returned to normal. It is difficult to think of vascular spasm lasting for periods so long as do some attacks of migraine. If there is a swelling of perivascular tissues, this might well encroach upon the pyramidal tract about the internal capsule and produce transient hemiplegia. In a condition in which the prognosis is so grave as it is in a "stroke", it is some comfort to remember that in one form of hemiplegia at least complete recovery may occur.

Summary.

Instances are described of cerebral hæmorrhage with survival, of delayed *rigor mortis* in the paralysed limbs of deceased hemiplegic patients, and of unilateral variations in sweating, temperature and blood pressure in hemiplegia, all of which were found to be slight, variable and inconstant. Cases of transient hemiplegia in patients subject to high blood pressure and migraine are described. Observations are recorded upon variations in sensation, upon athetosis, upon facial symptoms, and upon lesions of some of the cranial nerves and upon subdural hæmorrhage.

Apraxia and cerebral control of the sympathetic are discussed, with some reference to recent literature.

Addendum.

Since this paper was written two elaborate studies[10][11] on vasomotor responses in hemiplegia, with normal controls, have been published in *Brain*. The authors conclude: (i) that constriction and dilatation of blood vessels (in response to their stimuli) occur in the hemiplegic limb as in the normal limb; (ii) that no abnormality of the vasomotor responses in the limbs has been found in the presence of lesions of the human cerebral hemisphere.

References.

[1] D. W. Carmalt Jones: "Angina Pectoris as an Allergic Manifestation and other Observations on the Allergic State and its Treatment", The Medical Journal of Australia, November 5, 1932, page 557.

[2] J. S. Collier: "Nuclear Ophthalmoplegia, with Special Reference to Retraction of the Lids and Ptosis and to Lesions of the Posterior Commissure", *Brain*, Volume L, 1927, page 488.

[3] J. P. Martin: "Chronic Subdural Hæmatoma", *Proceedings of the Royal Society of Medicine*, Volume XXIV, Number 5, 1931, page 585.

[4] Joseph Périsson: *"Étude clinique et pathogénique des troubles sympathiques dans l'hémiplégie", Thèse de Paris*, 1925.

[5] G. W. Pickering and W. Hess: "Observations on the Mechanism of Headache Produced by Histamine", *Clinical Science*, Volume I, Number 1, 1933, page 77; also *The British Medical Journal*, December 17, 1932, page 1097.

[6] M. Critchley and F. R. Ferguson: "Migraine", *The Lancet*, January 21, 1933, page 123, and January 28, 1933, page 182.

[7] H. W. Barber: "Migraine", *The British Medical Journal* (Correspondence), November 2, 1935, page 874.

(9) C. Horwitz: "Migraine", *The British Medical Journal* (Correspondence), November 16, 1935, page 973.
(9) A. H. Douthwaite: "Migraine", *The British Medical Journal* (Correspondence), December 7, 1935, page 1131.
(10) V. Uprus, J. B. Gaylor, D. J. Williams and E. Arnold Carmichael: "Vasodilatation and Vasoconstriction in Response to Warming and Cooling the Body: A Study in Patients with Hemiplegia", *Brain*, Volume LVIII, Part IV, 1935, pages 448 and 456.
(11) G. Stürup, B. Bolton, D. J. Williams and E. Arnold Carmichael: "Vasomotor Responses in Hemiplegic Patients", *Brain*, Volume LVIII, Part IV, 1935, page 456.

THE TREATMENT OF TUBERCULOSIS OF BONES AND JOINTS.[1]

By A. R. Hamilton, M.B., Ch.M. (Sydney), M.Ch.Orth. (Liverpool),
Honorary Orthopædic Surgeon, Balmain Hospital; Honorary Assistant Orthopædic Surgeon, The Royal North Shore Hospital of Sydney.

I very much appreciate the honour of being asked to address you tonight, and thank you accordingly.

You will realize that it is impossible to enter into full details of the treatment of the individual joints in such a paper, and so I shall content myself by presenting, as well as I am able, the principles which the Liverpool school enunciates for the treatment of this disease. Let me remind you that these principles have gradually evolved during a period of about seventy years and result from the treatment and progress of many thousands of cases of tuberculosis of joints. Before one can appreciate and apply these principles one must have a clear mental picture of the pathology of the disease and must acknowledge the affected joint as merely a local manifestation of a general disease, and that ultimately the joint will be affected in all of its component parts in the majority of cases.

Doubtful cases should be kept under observation and treated as if tuberculous until proved otherwise. Biopsy in tuberculous joints entails the risk of sinus formation and is therefore not encouraged.

Treatment may be divided into general and local.

General Treatment.

1. Rest under trained supervision. This rest should be absolute and prolonged until the general health has returned to normal, as evidenced by gain in weight, healthy appearance and constantly normal temperature and pulse rate, and until the affected joint has sufficiently recovered to permit of ambulation.

2. Correct dietary.

3. An outdoor life. This should continue throughout the life of the individual. The benefits of the open air are attributed to the stimulating effects of changing temperatures, which afford gymnastic exercises to the vasomotor system and so improve the general metabolism.

4. Heliotherapy. The administration of natural heliotherapy should be carried out according to prescription and full precautions taken in its use. I consider that artificial heliotherapy is not necessary in this land of sunshine.

When the time for activity arrives, it must be instituted in gradually increasing doses, and any exacerbation indicates a further period of rest.

Local Treatment.

Local treatment will be considered in general terms, and again in reference to individual joints.

The joint itself must be put at rest—enforced, uninterrupted and prolonged—according to the rigour of H. O. Thomas. Once the joint is at rest, friction between the eroded articular surfaces ceases, pain is relieved and the muscle spasm subsides, and at once the patient loses that constantly anxious expression which accompanies the acutely painful joint. He is able to sleep, his appetite returns, and general resistance begins to improve. Of course, there is the occasional case in which the toxin continues to prevail over the resistance, with unhappy results.

For how long must this rest be enforced? A good working rule is: for six months longer than the time first chosen for the commencement of the "test of recovery". By the term "test of recovery" one means that the appliance is removed for half an hour, once, perhaps twice, a day; then, a week later, for one hour, and so on, until it is fully discarded. Should there be any return of the symptoms or signs of activity or of an unsound ankylosis at any time during or after this period, especially pain and muscle spasm, the appliance is resumed for a further period of six months or longer. Muscle spasm is the guide to the state of a tuberculous joint and must be looked for constantly. The time chosen for the commencement of the test of recovery is determined by: (i) the general condition of the patient; (ii) the absence of deformity or malposition; (iii) the absence of pain, local swelling and muscle spasm; (iv) the absence of a cold abscess; (v) the absence of activity and the presence of a good deposition of calcium as revealed by X ray examination.

In what manner should one bring about rest to the affected joint? In general terms, by means of skeleton splints. These splints should be light, but strong, and well-fitting enough to gain the confidence of the limb and the patient. Plaster of Paris should not as a general rule be used in the treatment of tuberculous joints, for the following reasons: (i) Pressure sores can occur, abscesses develop and form sinuses, and deformity may take place without the knowledge of the surgeon; (ii) it is usually necessary to immobilize more of the limb than is the case if a skeleton splint is used, with the result that the benefits of changing air temperatures are lost, and the increased blood supply and venous return, which muscle movement creates, do not take place; (iii) plaster of Paris merely conforms to the shape of the limb at the moment

[1] Read at a meeting of the Orthopædic Section of the New South Wales Branch of the British Medical Association on September 3, 1936.

of application and therefore cannot be made to correct deformity satisfactorily, whereas in a skeleton splint the deformed limb is gradually pulled into its correct alignment without interfering with the rest which the splint affords.

The deformity due to muscle spasm and adaptive shortening of muscles and capsule can, and in the majority of cases should, be corrected gradually by conservative means, whereas in the case of the soundly ankylosed joint an operative procedure is usually necessary.

Skeleton splints more or less conform to certain principles, although different makers have their own variations in certain directions. It is essential that the surgeon should be thoroughly conversant with the best type of splint and he should be satisfied that the one made is correct to type and is well fitting. It is unwise to rely solely upon the opinion of the splint maker.

Once the splint is applied it must not be interfered with, except by the surgeon or under his instruction. Pressure sores should not develop if the nurse in charge has been properly trained and carries out her duties conscientiously, and provided, of course, that the splint fits correctly. Extension cords or groin straps should not be untied, loosened or interfered with in any way by the nurse, unless so instructed by the surgeon.

Skin being pressed upon by any part of the splint must be moved under vision, spirited and powdered every hour, day and night, until the skin hardens—usually in two or three weeks—when the intervals may be gradually increased. In this way pressure sores are prevented and the method succeeds. If these most important details are neglected, pressure sores develop and the skeleton splint, especially the Thomas's bed knee splint, receives undeserved condemnation.

The Place of Operative Treatment.

Conservative treatment suffices in the majority of cases occurring in childhood. Probably the only indications for operation, apart from the drainage of a cold abscess, are: (i) amyloid disease, or the threat of it, when amputation or at best a wide resection of the diseased bone is indicated, and (ii) deformity, when the joint is soundly ankylosed. In adults the question of surgery must be considered, even though it is realized that conservative treatment would succeed in most cases.

The nature of the surgical treatment is of three kinds:

1. Simple arthrodesis of a joint combined with excision of as much of the diseased soft parts as possible. This is not done with the object of removing all diseased bone, but merely as an aid to Nature to bring about a more rapid and more perfect ankylosis than would otherwise take place. Not all joints lend themselves to this procedure.

2. The correction of deformity by osteotomy or wedge resection in those cases which are not suitable for conservative correction.

3. Amputation or a wide resection of diseased bone for the purpose of saving life. Amputation must also be considered for the aged patient; it is frequently wiser and kinder to amputate a limb, or part of a limb, than to commit such a patient to prolonged conservative treatment, with its concomitant dangers.

The treatment of the cold abscess may be described as: (i) expectant, (ii) one or more aspirations, (iii) incision when rupture is imminent.

The Treatment for Tuberculosis of Individual Joints.

The Sacro-Iliac Joint.

In children, conservative treatment on a Jones's double abduction frame is the method of choice. Pain is lessened by pressing together the joint surfaces by means of a pelvic girdle.

In adults, conservative treatment on a frame may be used; but in view of the bad prognosis as to life, operative treatment is justified, provided the disease is not present in other joints. Operation should be carried out early, even if a cold abscess is present, and may be done according to the excision of Picque or the arthrodesis of Smith-Petersen.

The Hip Joint.

Both in children and adults, conservative treatment on Jones's abduction frame, with fixed extension, gives good results in most cases. The term "fixed extension" means that the cords attached to the strapping are tied over the end-piece of the splint, as opposed to weight extension. It is necessary for the cords to be tightened at intervals during the day and night in the early stages, and later must be kept at an even degree of tension.

Ambulation should be commenced in a full-length plaster of Paris spica. The short spica must be condemned, especially when the hip is abducted, as knock-knee invariably results.

The number of cases in which a sound bony ankylosis is obtained after arthrodesing operations is too small to warrant the general use of this method of treatment.

Extensive resection of the involved bones should be reserved for cases which retrogress in spite of less radical treatment.

In connexion with the prognosis as to future deformity, one should not accept too readily an X ray finding of bony ankylosis of the hip joint, since bony ankylosis does not occur in a tuberculous hip unless secondary infection has intervened. Should deformity ensue with the passage of years, what treatment should one adopt? The answer is: (i) Correct by conservative means with the possibility of a further recurrence of deformity, or (ii) allow the maximum deformity to occur and then correct by means of osteotomy, in which case further deformity is unlikely.

Theoretically, I am inclined to the latter view, although it is difficult to convince patients and parents of its advantages.

The Knee Joint.

In children, conservative treatment by means of a Thomas bed knee splint and extension is the method recommended. The chief object of the extension is to correct and prevent deformity. In convalescence a caliper is worn until a sound ankylosis is obtained. This caliper must prevent the heel coming in contact with the ground. When backward luxation of the upper end of the tibia complicates the deformity, correction should be made by means of a two-way Thomas splint.

In adults, conservative treatment is usually satisfactory; but the period of convalescence may be considerably shortened if an arthrodesing operation is done. This is best carried out in from six to twelve months after the onset of the disease, when general and local resistance becomes apparent, and should consist of a simple arthrodesis combined with excision of synovial membrane, fat pads and cruciate ligaments. This operation should not be done in the presence of much pus, for fear that sinuses may result, or before the age of seventeen years. Three weeks after operation a caliper may be fitted and ambulation allowed.

In old people amputation might be considered preferable to more conservative methods of treatment.

The Ankle Joint.

In children, conservative treatment should be the rule. This is best carried out by means of a crab splint with the foot at right angles. At first, recumbency should be prescribed, and when walking is permitted the affected leg should be encased in a specially constructed walking caliper. This should allow the crab splint to be worn, and should end 7·5 to 10·0 centimetres (three to four inches) below the foot, and should have an end-plate of metal. A patten of required height must be worn on the shoe of the sound leg.

In adults, conservative treatment as outlined above may suffice.

A more rapid and efficient ankylosis may be produced by a simple arthrodesis. In the more advanced stages of the disease, astragalectomy or extensive excision of the ankle may be indicated. In the case which resists these methods of treatment, and this is especially noticeable in elderly patients, amputation should be carried out before the tibia becomes too extensively involved or the patient too toxic to benefit from the operation.

Tuberculosis of the tarsus demands either conservative treatment by means of a crab splint (see "Ankle Joint") or amputation. In isolated cases it may be possible to excise a single bone, if this be the only portion of the tarsus involved; but in practice one would be more inclined to give such a patient the opportunity to recover without resorting to surgery.

The tarsus is singularly interesting in its reaction to plaster of Paris immobilization, in that such a method of splinting causes rapid advance of the disease. I have known a doubtful case of tuberculosis of the tarsus to be deliberately encased in plaster for a few weeks—not more than six—for the purpose of establishing the diagnosis. When the plaster was removed there was no doubt as to the diagnosis.

Where sinuses develop and convalescence is particularly slow, as is frequently the case when the tarsus is involved, amputation should be carried out, and somewhat more readily than in tuberculosis elsewhere.

The Shoulder Joint.

Recovery from tuberculosis of the shoulder joint is slow. Treatment is essentially non-operative and is best carried out by means of a skeleton abduction splint, with the arm at right angles and in front of the plane of the body in children, and in correspondingly fewer degrees of abduction in adults, according to the estimated range of movement of the scapula.

The test of recovery in disease of this joint consists in active elevation of the arm from the splint. When this can be accomplished readily, the amount of abduction is diminished and greater range of active abduction allowed. Close watch must be kept for any diminution of the angle between the humerus and scapula; should this occur, a further period of rest in the original degree of abduction is enforced.

Excision of this joint is rarely necessary.

The Elbow Joint.

Conservative treatment usually succeeds, and this should consist of the "collar and cuff" method of fixation, without splints. If the disease is very early, full flexion may be allowed. This provides a greater degree of rest to the joint. As recovery and ankylosis proceed, the degree of flexion is gradually lessened until the elbow reaches the optimum position, a right angle, and this position is maintained until the joint is soundly ankylosed.

If the case is seen at a later stage, slinging at a right angle should be carried out. It is necessary to arrange the sling so that the patient is unable to remove it without the surgeon's knowledge.

Should the disease progress in spite of adequate fixation and rest, excision should be performed, and performed before the bones become extensively involved; otherwise amputation becomes necessary.

The Wrist Joint.

Tuberculosis of the wrist joint is very resistant to treatment, which is best carried out in a short cock-up (metal) splint with the hand in dorsiflexion.

In adults, excision of the joint may be required if the disease is resistant, and every effort should be made to avoid amputation.

Let me conclude with a plea for prolonged recumbency in most cases of joint tuberculosis, and an urge for the erection of an orthopædic hospital where patients with this disease can be segregated and treated according to these principles and later trained to do work commensurate with their disability and in this way become an asset to instead of a load on the other members of the community.

STATIC FOOT TROUBLE.[1]

By E. B. M. Vance, M.B., Ch.M. (Sydney), M.Ch.Orth. (Liverpool),
Honorary Orthopædic Surgeon, Royal South Sydney Hospital; Honorary Assistant Orthopædic Surgeon, Royal Prince Alfred Hospital, Sydney.

Under the heading of static foot trouble come all those disturbances of the feet which are due to mechanical stresses and strains. Essentially they are due to loss of symmetry and balance in the relationship of the foot to the lower part of the leg; they are aggravated by the common shoes and stockings of commerce, which are faulty in conception; they cause aching and tired feet, corns, callosities, discolorations, blemished toe nails, bunions, metatarsalgia, weak, "falling", or "fallen" arches, flat-foot, splay-foot, clawed toes, weak ankles, painful heels and many other named and unnamed conditions. There is no clarity in the nomenclature; and this is a confession of mental confusion in the past. They cause no fear of death, hence by patient and doctor alike these conditions are regarded as relatively unimportant, to be borne in silence by the one and overlooked by the other. Their treatment has given rise to the minor profession of the chiropodist—who can give temporary relief by treating symptoms only.

There is needed a branch of our profession which will be able to cure these distressing maladies, radically and permanently. The field is a large one, perhaps as large as dentistry. The outfit required is not extensive. The fundamental principles can now be discerned, and from now on they should grow clearer. The nomenclature should become more extensive and help to bring about greater precision of thought.

Methods of treatment include the wearing of well-designed shoes with suitable adjustments; exercises, with occasional manipulations; corrective plasters; and in rare cases surgical tenotomy.

In my search for fundamental principles I am indebted heavily to H. O. Thomas. Three profound observations of his are sufficient to establish the principles and practice of foot correction.

There are three classes of feet, the excellent, the medium and the bad. The first wear down the outer side of shoe heels more than the inner side, the medium wear the heels level, the bad ones wear down the inner edge and posterior curve of the heels.

Having thus opened up the whole subject of foot balance and given it a practical form, Thomas proceeds then to open up the treatment of it by saying: "By a modification of the foot sole it is possible to make a bad foot behave like an excellent one." Incidentally, he tells us that he devised the wedging of the sole of the shoe to prevent the gradual development of the everted and flattened foot so common after Pott's fracture. Finding it successful in this, he applied it, he tells us, to the treatment of flat-foot in general.

His next important contribution concerns splay-foot. He says: "This defect varies in degree from slight inversion of the foot when in use" (he supplements this with a clinical picture of the child brought on account of in-toeing) "to eversion of the foot, so that at every step it grinds on the point of the fibula. The last is easily recognized, as the peronei, and in most cases the extensors of the toes, are permanently contracted."

This covers the whole ground from the preliminary torsions to the final collapse, and lays open the extensive subject of muscle spasms.

Permit me, in parenthesis, to look back at the case of the child brought for in-toeing of the feet. In-toeing may be due to the rather rare congenital *metatarsus varus*, but it is rather more likely to be due to a subconscious muscular effort to inswing the forefoot in order to counteract an eversion fault of the hindfoot, that is, the heel. Another compensatory reaction to the early eversion of the heel is seen in the patient who comes complaining of frequent sprains of the external lateral ligaments of the ankle. The foot gives spasmodic inversion twists and sprains the ankle. These two types of case, frequently met with, illustrate that analysis of a foot fault has its subtleties.

Led by Sir Colin MacKenzie, one learns to look towards comparative anatomy for help in this and similar problems. The evolution of a foot suitable for human biped walking is one of Nature's more recent enterprises, and the result is not yet very stable. Nature's task was to convert the tree-grasping, two-piece hindfoot of a quadruped, with its opposable hallux, into the one-piece, weight-bearing, flexible lever which is the human foot.

To do this she made the outer, or digital, portion of the foot swing across to the inner or hallucial portion and fuse with it (my authority for this is Sir Arthur Keith), and she increased the length of the hallux and the strength of its short intrinsic muscles.

The ancient foot had a digital formula of $3 > 2 > 1 > 4 > 5$. In the foot of today the formula has become $1 > 2 > 3 > 4 > 5$. The usual shoe and stocking, with the toe tip placed in the centre, agrees with the old formula, in which the third toe was the longest. What is needed is both a shoe and a stocking formed with the peak on the inner side and not in the centre. I consider it desirable, too, to have a shoe which swings in the digital portion of the foot towards the hallux, thereby following the lines of evolution.

In the splay- or spread-foot one can see a reversion to the older type of foot. The four outer metatarsal bones get the old outspread set and the hallucial metatarsus develops the divergent inward set, recalling the two-piece foot. As for the hallux itself, it shows up its pedigree on occasions by being either (*a*) too divergent (*metatarsus primus varus*), (*b*) too short (*metatarsus atavicus*), (*c*) too mobile (*metatarsus hypermobilis*), or (*d*) too downward pointing (*metatarsus equinus*), all types

[1] Read at a meeting of the Orthopædic Section of the New South Wales Branch of the British Medical Association on August 13, 1936.

being variants of the old opposable great toe. To distinguish them and to name them is a definite help in dealing with foot problems.

The tibial and peroneal muscles as well as the long extensors and flexors of the toes had their actions reversed. Instead of working from a fixed point above and producing motion in the parts of a tree-grabbing, hand-like foot below, they have become now a set of muscles which act in the human foot from below upwards. The old moving parts have become the new fixed points, and the muscle actions are spent on the lower part of the leg to keep erect the orthograde human body. A practical application of this knowledge gives a new outlook. The foot must not be looked at as an isolated piece of anatomy, but as a one-piece foot-leg mechanism. Then the problem becomes not one of fitting a shoe to a foot, but of adjusting a sole to keep the foot balanced on the leg. What impresses me most in these developments is the extraordinary richness of the musculature attached to the base of the first phalanx of the hallux. This musculature appears to have as its object to plant and hold the first phalanx to the ground, to act as a fixed point from which long foot muscles can act firmly in balancing the leg above the foot. It is against this important small section of the human foot that the human sock and the human shoe sin most. Each plays its part in pushing the hallux outwards and throwing out of balance and weakening a part upon whose strength the vigorous action of a foot so greatly depends. "Look after the great toe and the foot will look after itself" is an aphorism I use both to patients and to shoemakers.

In these new arrangements the calcaneum lies balanced laterally between two groups of upward-sweeping muscles—the two peroneal muscles on the outside, and on the inside a group of three muscles, the *tibialis posticus*, the *flexor longus digitorum* and the *flexor longus hallucis*. None of these is directly attached to the calcaneum; but they pass through tunnel-like tendon sheaths which are attached to it, and thus influence it. The weight of the three inner muscles totals 180 grammes; the weight of the two outer, 117 grammes. As though to counterpoise this extra power and weight of muscle, the astragalus, with its superincumbent load of body weight coming through the tibia, is set slightly towards the inner side of the calcaneum, thus slightly tilting the calcaneum inwards above and outwards below. It is a beautiful arrangement designed to give resiliency. But a little extra weight above or a little extra weariness of the muscles makes the calcaneum go out of balance so that the normal faint tilt becomes exaggerated and an eversion capsize of the heel results. This, to my mind, is one of the commonest faults of the human foot. To counteract it I advise all growing children, all pregnant women, all soldiers asked to carry heavy packs, to wear a Thomas wedge inside the heel, in order to get the help of a piece of leather in doing what the muscles (that is, the invertors) would have to do by themselves.

Another asset gained from comparative anatomy is the conception of the foot as consisting of an hallucial portion and of a digital portion. This seems always to be cropping up and being helpful.

I wish now to refer to Böhler's contribution to the analysis of foot problems. Quite precisely he says a flat-foot is one which has a pronated (everted) heel and a forefoot which is supinated (inverted). He contrasts this sharply with the claw-foot, which has just the opposite—a supinated inverted heel and a pronated forefoot. He says further that the flat-foot is plantar flexed at the ankle joint, pronated at the subastragaloid joint, abducted and dorsiflexed at the mid-tarsal joint; and that in splay-foot there are adduction of the tarso-metatarsal joint and a compensatory abduction of the great toe. All this is keen dissection and helpful for analytical purposes. For the thought-compelling contrast between claw-foot and flat-foot, and the practical suggestions for the plaster corrections for both conditions one gives due and hearty thanks. The supination (inversion) of the forefoot in flat-foot was observed, as we have seen, by H. O. Thomas. The conception of torsion at the mid-tarsal joint and of the forefoot's twisting the opposite way to the hind foot (and especially the application of this conception to claw-foot) seems new and true. But it is true only of the first stage of the oncoming deformity. There is a later stage, when the muscles tire of the attempt to produce corrections by compensatory twists; when this happens collapse takes place. The flat-foot ends by being pronated in the forefoot, and the patient walks on the inner side of the foot. The final stage of claw-foot is equinovarus—the patient walking on the outer and upper part of the foot, a stage which can be reached only by supination of the forefoot.

Thus for our basic principles we rely mainly on the genius of Thomas, with some help from comparative anatomy and small additions from the artistic talent of Böhler. With these a working plan is built up, which is constantly under trial and test; so far it has stood up to them in practice.

From my point of view I see the foot as a thing likely to get out of balance, either from side to side or fore and aft. It is a thing consisting of a hind part (the calcaneum and the astragalus conjoined) and a fore part (that portion in front of the mid-tarsal joint which joins them together). There are four derangements of balance which occur in the hind part of a foot, two from side to side (a tilt out or a tilt in) and two fore and aft (a tilt up at the back and down at the front or a tilt down at the back and up at the front). These two latter depend upon the *tendo Achillis*, which may congenitally be too long or too short, or may become too short, especially by the wearing of high heels, or may become too long, very rarely, by accident or disease.

Following these derangements of the hindfoot comes the reaction of the forefoot. When the heel everts, the tibial muscles, especially the posticus, make an effort to check the oncoming capsize by

inverting and adducting the forefoot. Clinically such a foot bears on its sole a heavy callosity under the outer metatarsal heads, but under the great toe the skin is velvety soft. This is the first stage. The next stage comes with the traumatic arthritis which the torsion has caused in the tarsal and toe joints. Nature has a way of trying to put out of action joints which are inflamed. She causes a reflex contraction of the muscles controlling the joint. In the general spasm of the muscles which follows, the peroneal muscles gain the mastery of the foot.

When such a foot is viewed through the foot-print mirror, a two-island tread is seen, because the peroneal muscles are beginning to lift up the outer longitudinal arch of the foot. When the peroneal muscles are in complete command, the *peroneus longus* pronates the forefoot, thus reversing the first stage. Collapse has now occurred —the foot is going under the name of bad flat-foot.

Other muscular spasms which come in a foot in the process of collapsing include spasm of the *extensor longus digitorum*, which causes clawing of the toes and a series of corns along the knuckles of the toes, and also depresses the anterior arches of the foot. Spasm of the long flexors of the toes causes the tips of the toes to press downwards and produces corns just below the nails at the tips of the toes.

When the heel is inverted, as in claw-foot, there is the primary effort on the part of the *peroneus longus* to pronate the forefoot. Such a foot shows a heavy callus under the hallux, often complicated by a bursa.

As a claw-foot has usually a large element of equinus deformity in it as well, it tends to merge into the class of fore and aft unbalances.

Of these, the short *tendo Achillis* (that is, the one producing the up-at-the-back heel) is very common. High heels and prolonged illness in bed or congenital shortness are the causes. One detects the latter by this test, that even with the knee bent the foot will not dorsiflex to a right angle; it is in fact a true *pes equinus*. One finds occasionally such a foot with extra mobility in the tarsal joints, enabling one passively to produce an apparent dorsiflexion, which is seen to take place at the tarsal joints. This is the first stage of reaction. By the time patients begin to complain they have reached the second stage. By now the tarsal joints may be or may be not arthritic, with, typically, a bony boss on the dorsum of the foot at the metatarsal cuneiform joint. Such a foot must bear body weight on the metatarsal head, a little longer than usual at each step. Consequently metatarso-phalangeal joints are traumatized and muscle spasms have been at work. Long extensors, including especially that of the great toe, have produced a row of clawed toes and accentuated the equinus deformity of the whole foot.

Sometimes one sees an isolated deflection, either inwards or outwards, of one toe, due, I suggest, to spasm of an interosseous muscle, and these spasms cause soft corns. Sometimes the *extensor brevis digitorum* seems to gain control of the four inner toes and abducts them. This deformity, though common in a foot afflicted with rheumatoid arthritis, is uncommon in pure traumatic arthritis, but I am inclined to think it contributes to the splay-foot picture. Morton's metatarsalgia and painful callosities under the metatarsal head are also symptoms associated with this type of foot. An interesting muscle spasm, of which I have encountered two cases lately, is an isolated spasm of the *extensor longus hallucis*, producing an uptilting of the terminal phalanx of the great toe to such effect that the toe nail pierces every shoe worn. This, I fancy, would be an underlying cause of the rather common onychogryphosis.

The fourth type of foot, namely, that in which the *tendo Achillis* is too long, is often seen in children about the age of two, or earlier, on account of flat-feet or clumsy walk. On picking up such a foot one finds that single finger pressure suffices to dorsiflex the foot, almost making it touch the tibia. This fault is always combined with eversion of the foot; hence it is the flatness of the foot of which the parent complains. No amount of effort will cure this flat-foot, unless attention be given to the too long *tendo Achillis*.

In thus describing in an analytical way the foot and its behaviour you will perceive that little has been said about flat-foot or falling arches.

It is true that the inner longitudinal arch and later the anterior transverse arch do disappear in the devolution of the foot which commences with the eversion of the heel. But this flatness is not the thing that matters. What matters is the relationship of the foot to the leg. Treatment devoted to the mere shape of the arch by this or that type of arch support cannot be effective except in a small proportion of the minor degrees of flatness, which would have been curable equally well by correct shoeing. The arch support is not the way to secure the radical and permanent cure.

Also in this description there have been few references to congenital faults. These include the obvious club-foot in all its varieties, which fall outside the scope of this paper, but minor degrees of these faults do creep into the study, and, if borne in mind, give clues to diagnosis.

I recently saw a child who walked badly at the age of eighteen months, and found that in the right leg he had a *tendo Achillis* too long and on the left leg a *tendo Achillis* too short. The former was accompanied by a flat-foot and the latter by a very slight *equinus varus*, and the treatment designed on this diagnosis resulted in satisfactory improvement. One is thus left wondering whether those people who do develop static foot troubles may not have been rendered prone to them by some faint degree of congenital fault. This speculation gathers more point when we consider that faulty shoes do not ruin all feet; and it terminates in the question whether each static foot sufferer may not have as a background either a too long *tendo Achillis* or a

too short one, the former leading to heel eversion and flat-foot, the latter to heel inversion and claw-foot.

The causes of the common foot strain, that is, flat-foot types, are:

1. Footwear.
2. Fatigue of muscle, due either to (*a*) weakness, as in convalescence or after a severe injury to the foot or leg, after child-birth, or during menstruation; or (*b*) increase of weight to be carried, especially in ordinary growth in children, in pregnancy, or in middle-age spread.
3. Over-use, as in young nurses, school teachers, shop assistants, barbers, Jewish shop-keepers, overworked housewives.

The Symptoms.

The common symptom is just plain: "My feet ache all over and tire easily." When asked to "point out with one finger" the sorest place in each foot separately, the patient states the symptoms as follow:

1. Pain under the mid-tarsal joint on the inner side, often accompanied by cramp of the sole muscles.
2. Pain, tenderness and swelling along the course of the *tibialis posticus* tendon, behind the internal malleolus.
3. Painful heel, with or without calcaneal spurs.
4. Painful callosities: (i) under the outer digital portion of the metatarsal heads, especially with a painful corn on the fifth toe (in early flat-foot); (ii) under the hallucial metatarsal head (in late flat-foot and in early claw-foot).
5. Tenderness in the hallucial metatarso-phalangeal joint, with either bursitis, *hallux valgus* or *hallux rigidus*.
6. Claw-toes with corns thereon and the longitudinal cuticular roll along the inner margin.
7. Rarely, pain under the external malleolus, when peroneal spasm is evident.
8. Pain on the dorsum of the foot and along the front part of the deltoid ligament, with a certain amount of rigidity in the range of movement. (This is an indication for manipulation under anæsthesia.)
9. Very rigid flat-foot, which cannot by any active or passive efforts be corrected. (This is an indication for the use of the Thomas foot wrench.)

Treatment.

Eight years ago I read a paper on this subject and I find that in speaking of treatment all the emphasis was laid on the specification of a good shoe. Thanks to the pioneering efforts of a large departmental store, this problem is now very nearly solved. We have a good shoe. I once attended a lecture on flat-feet in a Continental city, at which there were shown a multitude of arch supports, but no specimen of the Thomas wedged heel was to be seen. Ever since I had that experience I have had a superiority complex in regard to feet problems, because here was a famous orthopædic surgeon who knew nothing about them—and the wedged heel is easily the most important of all the methods of treatment. Add to this the Thomas metatarsal bar and we have the basic principles of treatment for both the side-to-side and the fore-and-aft capsizes.

Having determined which of the imbalances we have to deal with, the next thing is to decide its severity. Three grades can be distinguished. The first grade of imbalance will be corrected with correct shoes *plus* modifications of the sole and exercises. The second grade requires corrective plaster of Paris to begin with, followed by correct shoes and adjustments and exercises. The third grade requires tenotomies followed by plaster, followed by shoes and exercises. The tenotomies are of the peroneal muscles, the long extensors of the toes, the long flexors of the toes, and, in claw-foot, of the plantar fascia and of the *tendo Achillis*.

It is not possible to lay down precisely the indications for classification in any of these three groups. One sometimes decides for group two or three when the time available for treatment is of importance. In a general way shoes and exercises alone will take two to three years, even in childhood, to produce much permanent correction, whereas with plaster the time can be cut down to from six to nine months. To choose the right case for manipulation is to acquire great merit, for this often works wonders in a very short time. As to exercises, we all have our favourite sets of exercises and methods. But I personally admit a debt to Dr. Hembrow, of Melbourne, for emphasizing the importance of exercising both interosseal and lumbrical muscles when making plans for a series of foot and toe exercises.

INDICATIONS FOR THORACOPLASTY IN PULMONARY TUBERCULOSIS.[1]

By Henry Searby, B.Sc., M.B., M.S. (Melbourne), F.R.C.S. (England), F.R.A.C.S.,
Honorary In-Patient Surgeon, Royal Melbourne Hospital, Melbourne.

In tuberculosis of the lung surgical intervention in the form of thoracoplasty may be required (i) in the unilateral parenchymatous lesion with a strong tendency to fibrosis, (ii) in certain complications of pneumothorax, and (iii) if the condition is complicated by empyema.

Before discussing these types in detail, I wish to remind you that, although the idea dies slowly that the immediate post-operative mortality is great, it is, in properly selected cases, a minor consideration. A surgeon accustomed to this work can obviate the risks of shock, hæmorrhage and sepsis. The prognosis then depends upon the ability of the contralateral lung to stand up to the extra strain imposed upon it; the behaviour of this lung, in turn, is dependent upon the patient's resistance to the

[1] Read at a meeting of the Radiological Section of the Victorian Branch of the British Medical Association on July 21, 1936.

disease. The problem is, therefore, biological as well as anatomical. The physician in charge of the patient must estimate the biological possibilities, and the radiologist must be responsible for the anatomical aspects. In general, resistance is expressed in the form of fibrosis, and it is in the interpretations of the skiagrams that the radiologist is of so much help.

The type of case most suited to thoracoplasty is one wherein the disease is confined to one lung and wherein the lesion is almost wholly fibrotic. But from our knowledge of the way in which the bacillus of tuberculosis invades the lungs, it must be only very rarely that the disease is strictly unilateral. The problem therefore becomes that of dealing not with a patient who possesses one infected lung and one sound lung, but with a patient who possesses one badly infected lung and one less infected lung.

If we confine thoracoplasty to what we might call the ideal type of cases, we can promise a very low operative mortality and over 80% of "cures". By "cure" I mean that the patient, after the lapse of a year, has no signs or symptoms of tuberculosis, that is, he has no cough, no sputum, has gained weight, has a feeling of well-being and is able to do a day's work. In other words, he can earn his living and is no longer a menace to his fellow-men.

As we depart from the ideal type of case the mortality from acute exacerbation of disease in the good lung gradually rises and the percentage of cures falls. But as many patients, after a year or so, show great improvement which may go on to eventual "cure", the chance of such cure should not be denied them. By "great improvement" I imply that there is very little cough or sputum, and that sputum, if present, is persistently "negative"; there is no fever, the patient can do light work, and is not a danger to his fellow-men. Experience shows that these patients either progress to a cure, as stated, or else their condition gradually becomes worse because of disease in the good lung. Provided that the physician thinks that the lesion in the bad lung is causing the symptoms, and that its presence prevents the good lung from healing, the bilaterality of the disease is not necessarily a bar to surgical intervention.

In many of the cases a surgeon now sees the condition is of long standing and the disease in the better lung is too far advanced for us to hold out any reasonable hope of cure. This is a pity. But a decision cannot be reached satisfactorily very early in the disease. It is only when medical and sanatorium treatment has reached its limits that the possibilities which surgical intervention offers should be considered. But when those limits are reached, delay is not justified.

Thoracoplasty for Unilateral Parenchymatous Lesions with a Tendency to Fibrosis.

I think that we can divide cases of unilateral parenchymatous lesions with a tendency to fibrosis into three groups, namely, the favourable, the doubtful, and the unfavourable. It is justifiable to submit certain of the unfavourable cases to operation because it offers the patients their only chance.

The favourable cases comprise adults in good general condition, whose temperature and pulse are almost normal, and in whom artificial pneumothorax has been tried and found impossible. Sanatorium treatment has reached its limit, the disease has been present for at least two years, but the patient cannot resume active life because regular work provokes a relapse, the sputum still contains tuberculosis bacilli, and the ultimate outlook is bad. The bad lung shows chronic fibroid tuberculosis with small cavities; the lesions may be disseminated, but the lung is contracted, the diaphragm is elevated and the mediastinum pulled over. The good lung shows lesions which are either minimal or entirely fibrotic. The condition seems stationary, but there is abundant evidence that within the lapse of a few years the patient will die of pulmonary tuberculosis. Thoracoplasty is essential if the fatal issue is to be postponed, and it offers the only chance of a "cure" as defined previously.

The doubtful cases include patients who are over twenty, but under forty, years of age; their general condition is not very good, the temperature and pulse are often elevated, there is loss of weight and strength, anorexia and insomnia are frequently present, the sputum is positive, but reasonable evidence of resistance in the way of scar contraction exists. The seriously affected lung shows more extensive infiltration than in the favourable type of case; the cavities are larger and more numerous, and show a tendency to progress. Serial films reveal slow but steady enlargement of cavities with occasional extension in lung substance with imperfect absorption. The good lung is under suspicion. The lesions in it are not certainly arrested or perhaps have been active within the past year. The prognosis without operation is bad. Whereas I have described the favourable cases as being apparently stationary, these doubtful cases are best described as "slipping". Thoracoplasty is advisable to obviate progress in the bad lung. Then, if the lesions in the good lung undergo fibrosis, this offers the only chance of cure; if, however, the lesions in the good lung progress, the patient will die of pulmonary tuberculosis. Death must then be attributed to the operation, despite the fact that without it the prognosis is bad. It is only by the accurate selection of cases that such deaths will be avoided.

The unfavourable cases include patients over forty years of age, in poor general condition, with persistent fever and elevated pulse rate, loss of weight and strength, anorexia and insomnia, toxæmia and positive sputum. But in these cases the physician believes that the badly affected lung is the focus from which progression is taking place. This lung shows more extensive cavitation than in the other types, the cavitation involves more than one lobe, and there have been recent invasions of the lung substance. Serial films reveal steady advancement of the disease. The good lung shows lesions which, although small, are recent; it is impossible to say

that they are active, but they are suspicious. Resistance is falling, and the patient, far from being in a stationary condition, or what I have described as "slipping", is actually sliding downhill. If thoracoplasty is performed the patient has a chance. Without thoracoplasty death ensues in a few months.

I think it is reasonable to promise a very low mortality rate and a high percentage of cures in the favourable cases; a reasonable percentage of cures, but with a higher mortality rate, in the doubtful cases; while in the unfavourable cases we cannot promise with any degree of certainty any cures, but we can promise a definite percentage of "improvements", with occasional cures. Mistakes in estimation of the extent of the lesions must occur. The combined efforts of the physician, the radiologist and the surgeon should be directed to the selection of the cases which will benefit; this is the only way of reducing the mortality from disease in the contralateral lung and of increasing the percentage of cures.

Thoracoplasty for Certain Complications of Artificial Pneumothorax.

I think that the two main indications for thoracoplasty in complications arising after artificial pneumothorax are (i) when the adherent apex containing a cavity remains uncompressed, and (ii) when the good effect of the pneumothorax is vitiated by a wide band of adhesions running from the lung to the parietal pleura.

When the adherent apex containing a cavity remains uncompressed, real improvement has usually followed the induction of a pneumothorax, but an unsatisfactory stationary condition has ensued. If acute or exudative lesions existed, the pneumothorax should be continued for at least a year, despite the stationary condition. But if the original lesion was of the chronic productive type and the unsatisfactory stationary condition has ensued, delay serves no useful purpose. An upper thoracoplasty may be all that is necessary, but the question of the extent of the rib resection must be left to the judgement of the surgeon.

When the good effect of the pneumothorax is vitiated by a wide band of adhesions running from the lung to the parietal pleura, the cavity cannot heal, and it may rupture during coughing. The adhesion practically always contains lung substance, and cutting it involves the risk of empyema and so may produce a very much more dangerous condition. Phrenic evulsion may help, but thoracoplasty should be performed if this measure fails and if the condition of the contralateral lung is satisfactory.

Thoracoplasty for Pulmonary Tuberculosis Complicated by Empyema.

Empyema complicating pulmonary tuberculosis may be (i) serous or sero-purulent; (ii) frankly purulent, but on culture only *Bacillus tuberculosis* is grown; or (iii) due to a mixed infection of *Bacillus tuberculosis* and pyogenic organisms.

With serous or sero-purulent fluid, I believe that thoracoplasty is indicated only as it would be in uncomplicated cases, that is, for the lung condition on its merits. The effusion *per se* does not warrant surgical interference. Often no radiological evidence of the pulmonary condition prior to the effusion is available. The fluid should be aspirated and an X ray picture of the lung obtained if possible. The physician should then be content to wait. At any rate, he has some radiological evidence of the condition of the contralateral lung. The pulmonary condition can then be treated on its merits; surgical treatment may be necessary, but I am sure that it should be undertaken only because the condition of the lung warrants it and not because there is an effusion.

With frankly purulent tuberculous pus the same remarks apply. But there seems to be much more chance of this type of effusion becoming secondarily infected and, for this reason, if the physician is unable to control the effusion, surgical interference may have to be resorted to under less favourable conditions than in the presence of a serous or sero-purulent empyema.

If, as a result of thoracoplasty, a satisfactory condition of the lung ensues, there is little doubt that the pus will eventually be absorbed.

In the presence of a mixed infection I have been unable to cure patients by thoracoplasty unless the pleural infection has been cleared up first. I cannot believe that it is a correct surgical principle to perform thoracoplasty when there is a gross pyogenic infection present. Every endeavour by aspiration and lavage must be made to render the pleural cavity sterile. If this happy result is achieved, the pulmonary condition can then be treated on its merits. Very often, unfortunately, rib resection is necessary to save the patient's life. My experience has been such that the condition of the other lung then very often precludes surgical interference for what is, virtually, a chronic empyema in a phthisical patient.

SYMPTOMS PRECEDING SUICIDE.

By S. J. Minogue, M.B., Ch.M., Diploma in Psychiatry (Sydney),

Medical Superintendent, Mental Hospital, Newcastle; Honorary Psychiatrist and Neurologist, Newcastle General Hospital, Newcastle, New South Wales.

A clinical review of the 4,688 known cases of suicide in New South Wales from 1913 to 1929 inclusive reveals that in a great majority of the cases the actual suicide was preceded by a period of insomnia. The insomnia in some persons had lasted for many years, in others it had lasted only a day or two.

Although the causes of the insomnia were extremely varied, for practical purposes they fell into five well marked categories:

1. A few patients had "idiopathic" insomnia, which had no known causation and which had been present for many years.

2. A large number of patients suffered from physical illnesses. As a general rule the more prolonged and painful the illness (as, for example, cancer of the stomach), the graver the risk of suicide. The frequency of suicide after head injury surprises me. In such cases there is usually a history of concussion or of fracture of the skull followed by a long history of pains in the head, insomnia, and mental and physical exhaustion. Patients with phthisis, contrary to all medical impressions, comprise more than 1% of the cases. The fifty puerperal women in the series are a bitter reminder to us that on no account should insomnia during the puerperium be treated lightly.

3. A large group comprised those with psychological worries. The main worries met with were domestic unhappiness, unhappy love affairs, business and financial worries, and worry over the illness or death of relatives.

4. Patients suffering from mental diseases were common. Whilst those with acute melancholia were far and away the most numerous, examples of most other forms of mental disease, such as paraphrenia, epilepsy, and even mental defection, were met with.

5. Roughly about a third of the patients were alcoholics. A large number had acute alcoholism with its persistent insomnia, anorexia and tremulousness. The frequency of suicide amongst persons suffering from *delirium tremens* is one of the unexpected discoveries of this investigation. Many of the patients took alcohol in large quantities to induce sleep, others attempted to seek in alcohol a refuge from pain, worry, mental depression, or even from the vivid hallucinations of some other form of mental disease.

The insomnia, therefore, can be regarded only as a symptom of some physical or psychological disease process. Whatever its cause it led to rapid mental and physical exhaustion. Headaches were usual. The headache took the form of a dull aching pain; perhaps of a feeling of "a tight band around the head", or a sensation as if the "head were bursting". If the process was long continued the patient became desperate. Large numbers wrote: "the strain is too great"; "it is more than I can bear"; "no sleep day or night". Some became restless and apprehensive. A large number were haunted by the fear of insanity. Eventually the struggle became too great and the inevitable ending was self destruction. The risk of suicide was greater if the patient was living alone, if he had no relatives or friends to console him, and if he was not deeply religious; and the older he was the graver the risk of suicide.

It would appear that the risk of suicide in many of the patients was not sufficiently realized by their medical attendants. Patients in general hospitals in acute bodily pain often had had no sleep for nights. Patients sleepless from psychological worries were sent away "for a change" and committed suicide during their "change". Some patients who were wealthy enough were sent abroad for a holiday and returned worse than when they went away.

The investigation (which is still very incomplete) has convinced me that the treatment of insomnia still leaves very much to be desired. It has been my experience that many medical practitioners are afraid to prescribe hypnotics lest the patient should become a drug addict. I have known patients who lead useful and energetic lives and yet who must take a few grains of potassium bromide every night before they can sleep. Without the bromide they become "mental invalids", unable to work, a misery to themselves and to their people. I contend that it is much better for them to have their bromide and be useful citizens than to be treated on strictly ethical lines and be chronic invalids. There must be a middle course between those who rigidly refuse to give hypnotics in insomnia and those who give such large quantities that the patient becomes a drug addict. Nowadays we are tending to lose sight of the fact that we must "treat the patient and not the disease". Some patients require hypnotics every night in gradually diminishing quantities perhaps for months before they can sleep normally. Others sleep perfectly well after they have had a sleeping draught for only one night. Others can be treated on general lines, such as by massage and by suggestion, without the use of hypnotics of any description.

The fact remains, however, that if we can induce sleep in our patients the risk of suicide must be enormously decreased. If a patient with *delirium tremens*, for example, is sleeping well the risk of suicide or even of death is small. If, however, the patient is sleepless and is allowed to roam around night after night, there is a distinct risk of suicide, especially by precipitation from an upstairs window, or there is a grave risk of death from exhaustion.

It would also appear that the value of rest in the treatment of psychiatric conditions is not sufficiently realized by the profession. If a patient is restless and sleepless from some great psychological worry and strain the only possible form of treatment is absolute rest in bed and the exhibition of sedatives even in large doses for weeks at a time. The favourite and well tried mixture used by most psychiatrists is:

℞

Potassii Bromidi 0·6 to 1·0 gramme (10 to 15 grains).
Chloralis Hydratis 0·6 to 1·0 gramme (10 to 15 grains).
Tincturæ Opii 0·6 to 1·0 cubic centimetres (10 to 15 minims).
Infusi Gentianæ Compositi ad 15·0 cubic centimetres (half an ounce).
Signatur: 15·0 cubic centimetres (half an ounce) to be taken three times a day.

In the early stages of the treatment, when sleep must be procured as soon as possible, 1·3 grammes (20 grains) of sulphonal given about 6 p.m. for three

or four nights is extremely useful. If the patient still does not sleep, paraldehyde in a dose of 8·0 grammes (two drachms) three or four hours after the sulphonal stands supreme. In those rare cases when the patient still does not sleep one has recourse to hypodermic injections. The injection found most useful in mental hospital practice is the combination of 0·00065 gramme (one one-hundredth of a grain) of hyoscine hydrobromide with 0·016 gramme (one-quarter of a grain) of morphine sulphate and 0·00054 gramme (one one-hundred-and-twentieth of a grain) of atropine sulphate.

A review of the case histories, as well as one's own experience as a psychiatrist, reveals the astonishing faith the medical profession has in morphine in cases of insomnia. Morphine induces sleep because it relieves bodily pain and discomfort. On the other hand, when the patient is excited, it acts as a direct cerebral stimulant, a fact insisted upon by all morphomaniacs. The experience of seeing a patient excited and restless in spite of repeated and large doses of morphine is very common in Reception House practice. In such cases the restlessness and excitement often rapidly disappear after morphine has been withheld. In cases of mental stress and strain, in cases of mental excitement, in cases of delirium and the like, morphine is effective, as a rule, only when it is combined with other drugs, such as chloral hydrate, potassium bromide and hyoscine hydrobromide. It is precisely for these reasons that the use of morphine alone as a hypnotic and sedative has long since been abandoned in mental hospitals.

The clinical material so far investigated emphasizes the axiom that it is imperative to treat not only the insomnia, but the patient as well. A married woman with a large family, who has struggled for years against poverty, domestic unhappiness, nay even in some cases ostracism from her relatives and friends, and who eventually becomes exhausted mentally and physically, is most unlikely to improve in her own home. She requires prolonged rest in a hospital. The business man, exhausted and sleepless from prolonged business and financial worries, will surely be made worse when he is sent away for a holiday, which will increase his financial worries. The man who has worked unduly hard for years, and has no particular worries, improves dramatically when he is given mild sedatives and is sent away for a holiday. The young man or woman threatening suicide because of an unhappy love affair requires a stern reprimand and perhaps nothing more.

Suicide is therefore the end result of a large number of factors, both physical and psychological. Whatever its cause, it is generally preceded by a period of insomnia with its concomitant symptoms and signs. It is imperative for us to realize the risk of suicide in such patients and also that the patient requires urgent and immediate treatment. If appropriate treatment is given I am convinced that many a suicide can be prevented, a fact well known to all psychiatrists. But unless we, as a profession, realize that sleepless, depressed and worried patients are prone to suicide, and that such patients can be very successfully treated by modern psychiatric methods, there seems to be little hope of appreciably reducing the suicide rate in Australia.

Acknowledgements.

I have to thank the Crown Law authorities in Sydney for allowing me to investigate coroners' depositions and also Dr. C. A. Hogg, ex-Inspector-General of Mental Hospitals in New South Wales, for suggesting the investigation.

Reports of Cases.

PROSTHETIC APPLIANCE FOR ATRESIA PALATI IN AN EDENTULOUS PATIENT.

By ARTHUR AMIES, D.D.Sc. (Melbourne), F.R.A.C.S. (L.O.),
Dean of the Faculty of Dental Science, University of Melbourne,

AND

DAVID BAGHEL, B.D.Sc. (Melbourne), D.D.S. (Toronto),
Officer in Charge of the Prosthetic Department, Melbourne Dental Hospital.

ATRESIA PALATI can be treated satisfactorily only by a combination of surgical and prosthetic procedures which are exactly correlated. One of us (A.A.) has previously described the construction of an apparatus for a patient with partial or complete natural dentures,[1] but for an edentulous patient this description requires considerable modification. Recently, Dr. T. G. Millar, F.R.A.C.S., referred such a case to us for the construction of an appliance prior to operation. The method of construction was as follows.

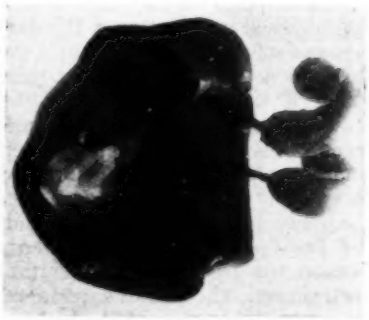

FIGURE I.
Upper denture viewed from below.

Careful "muscle-trimmed composition" impressions were taken of both jaws. The upper impression included as much as possible of the soft palate and cranial portions of the anterior pillars of the fauces. Models were cast in "artificial stone", bite blocks were constructed and the "bite" was registered.

The model of the upper jaw was then carved to approximate the estimated result of the surgical procedure. Base plates and interlocking bite blocks were then constructed so that the "dentures", when in apposition, were in reality a Gunning splint. Vulcanized into the palatal portion of the upper "denture", and passing backwards, were nickel silver wires (gauge sixteen Brown and Sharpe). These were annealed to allow subsequent manipulation. The extremities of each were covered with a thick pad of soft vulcanized rubber and were curved cranially so as to project into the naso-pharynx.

FIGURE II.
Upper and lower dentures in apposition, side view.

Insertion of Appliance.—After the soft palate and anterior pillars of the fauces had been dissected free and the naso-pharyngeal opening restored as far as possible to normal, the upper "denture" was inserted. The posterior projections were manipulated so as to hold the newly constructed anterior pillars in place without unduly interfering with the movements of the uvula. The lower denture was then inserted, the jaws were closed and a rubber dam bandage was used externally. There was no danger in immobilizing the jaws before the patient recovered from the anæsthetic, as vomitus could be voided via the opening between the bite blocks, which was purposely constructed in the incisor region for feeding purposes.

Reference.

(1) W. J. Denehy and A. Amies: "The Treatment of Adherent and Deficient Palates", THE MEDICAL JOURNAL OF AUSTRALIA, February 4, 1933, page 150.

Reviews.

A BOOK ON HEART DISEASE FOR THE CLINICIAN.

THE readers of William Osler may remember his advice to the general practitioner, to buy one or two special monographs each year. In order to cater for such a need in the subject of heart disease, Lewis some years ago wrote a book for doctors who made no pretence of being cardiologists, and the same service has now been excellently rendered by Samuel A. Levine.[1] This book on "Clinical Heart Disease" can be sincerely recommended. It contains sufficient technical information for the reader to learn such matters as the interpretation of electrocardiograms, but much more valuable are its practical and well-balanced chapters on the heart in relation to the problems of general medicine. In the preface the author expresses his conviction that the majority of medical graduates should be trained well in common things and that they should be able to discriminate between the conditions which matter a great deal in diagnosis and treatment and those which are of more academic interest. To this educational ideal he has made a real contribution in this book. Not all of the contents of the book are strictly scientific; in fact it contains some matter which may be classed under the heading of clinical impressions, but these portions are personal and therefore more valuable than conventional phrases of the kind, which are too often found repeated in book after book. The tone of this book is not always didactic, it is sometimes provocative; this too is of definite value. Levine admits, for instance, that his indications for the use of digitalis are wider than those of most English physicians. Certain chapters may be singled out as likely to be of great service to general practitioners; among them are those on functional heart disease, acute cardio-vascular emergencies, the clinical significance of the systolic murmur, and prognosis in heart disease. The added risk of surgical and obstetrical adventures by the cardiac patient is also clearly set forth. One small point of interest may be noted in the section on functional heart disease. Levine points out that neuro-circulatory asthenia was less common among American soldiers than British, and remarks that this was due to the more prolonged strain of warfare endured by the British; he believes that had the War lasted longer, the Americans also would have needed special hospitals equipped to deal with this problem. A very important variety of cardiac affection that is duly stressed in this book is that caused by thyreotoxicosis, and the author warns the reader of the real danger of overlooking what he calls the "masked thyro-cardiac patient".

The work is very well produced, the graphs in the section on electrocardiography being clearly printed, and the volume is of a handy size. The style of writing is familiar and simple; even a fire and an armchair do not prevent one from absorbing the information set forth in these pages. True, the purist will cavil here and there: a "very large trace of albumin" may annoy him, and an "extra-auricular systole" (that is, systole arising in the auricle) may confuse him; but an easily read book is welcome to all. Repetition occurs in a number of places, as the author freely admits, and perhaps rearrangement here and there could improve the book by removing occasional discursiveness; but students of all ages will surely learn much from these pages expressing the views and experience of an acknowledged authority.

[1] "Clinical Heart Disease", by S. A. Levine, M.D., F.A.C.P.; 1936. Philadelphia: W. B. Saunders Company; Melbourne: W. Ramsay. Royal 8vo, pp. 445, with illustrations. Price: 32s. 6d. net.

INFRA-RED RAYS IN SURGERY AND MEDICINE.

INFRA-RED RAYS are the invisible rays extending from the visible red rays to and beyond the Hertzian waves, that is from 77,000 Ångström units to and beyond 500,000 Ångström units. In the third edition of his book, "Therapeutic Uses of Infra-Red Rays", Dr. W. Allandale Troup describes the varied uses of this comparatively modern method of treatment.[1] Diseases may be cured by many different methods, but the wise physician or surgeon will investigate every means of effecting a cure before discarding any one of them as useless. Dr. Troup advances good reasons, buttressed by the evidence of a large number of successful results, in advocating at least a fair and unbiased trial of the infra-red rays. Many, from personal knowledge of the efficacy of these rays in many of the conditions which Dr. Troup mentions in his book, will agree with his conclusions. In some of his treatments he combines infra-red with the ultra-violet rays. This may seem strange to those who know that in some ways the

[1] "Therapeutic Uses of Infra-Red Rays, with a Chapter on the Treatment of Sinusitis by Radiotherapy", by W. A. Troup, M.D., Ch.B., with a foreword by Sir William Willcox, K.C.I.E., C.B., C.M.G., M.D., F.R.C.P.; Third Edition; 1936. London: The Actinic Press Limited. Demy 8vo, pp. 165, with illustrations. Price: 10s. 6d. net.

former are antagonistic to the latter; but he advances good reasons for his methods and, what is still more important, instances cures to prove their efficacy. The conditions for which he has found infra-red rays, alone or combined with ultra-violet rays, most useful, have been acutely painful disorders, such as neuritis, neuralgia and even some cases of *tic douloureux*, rheumatism and allied conditions, rheumatoid arthritis (here he claims to alleviate rather than to cure), paresis, sprains, injuries of long standing and other disorders, such as those affecting the feet. A large amount of space is devoted to the treatment of sinusitis. Very promising results have been obtained with diathermy, but it is sometimes combined with infra-red radiation with complete satisfaction in sinusitis. Dr. Troup combines the infra-red with ultra-violet radiation, and his views deserve consideration, as sinusitis is always a stumbling block in the way of the general practitioner and the specialist. Dr. Troup makes use of X rays and of bacteriological examination to verify diagnosis and final results. When such care is taken to avoid mistakes, his conclusions should not be condemned without further investigation. Dr. Troup devotes some space to an explanation of the action of the rays and to the instruments which he has found of service as sources of their production. This should be helpful to those who wish to make use of this method of treatment. It would be well if this book were widely read; it is concise, by no means arrogant in supporting its claims, and is helpful.

NEUROPATHOLOGY.

Present-day students in neuropathology have been well catered for; we can call to mind some half dozen eminently practical treatises. There are some students, however, who crave for a neuropathologist's actual experiences, and for these a place will surely be found for Biggart's "Pathology of the Nervous System".[1]

No practical pathologist who peruses this work need be told that the author has personally examined at autopsy and sectioned most of the material provided in his manual. For this reason a complete compendium of all known neuropathological states must not be expected, and this Professor Drennan, who writes the foreword, confesses. Most of the author's material comes from the affiliated asylums of southern Scotland and general hospitals in Edinburgh, Belfast and Baltimore. The interesting fact emerges that, given sufficient material, a neuropathologist gets much the same work to report on the world over, sure proof of the personal nature of the work.

In the small compass of some 300 pages a clear exposition is presented of the pathology of the neurologist's material, and some 200 illustrations, mostly reproductions of photographs or photomicrographs, amply support the text.

In spite of this simple presentation it is surprising how many current neuropathological concepts have been woven into the work; to that extent perhaps some previous neurological knowledge is taken for granted. The author's sound grounding in general pathology has also enabled him to emphasize parallels between reactions in the nervous system and those obtaining elsewhere in the body, a desirable feature for students in psychological medicine. The hope is expressed that students will be encouraged to inquire into ætiological factors and what is going on in the brain.

Injuries of the nervous system, and virus, deficiency and intoxication diseases call for special mention, and a short but useful chapter on developmental defects indicates the scope of the book.

Quite a well-balanced chapter or two on tumours are included, and the author leans to Leonard Cox, of Melbourne, in his modification of Bailey and Cushing's classification of the essential gliomata. His experience that giant-celled astrocytomata are usually deficient in glia fibres is not our experience, and in his opinion microglial tumours do not occur in the brain.

It is often a reader's lot to wade through pages on vascular pathology and to emerge with but few settled concepts. This part of the work is both clear and concise, and the author emphasizes Ford Robertson's ideas about the peculiarities of the intracerebral vascular system and lesions. It is gratifying to note his strongly worded dictum that "the naked eye appearances of the great vessels are no criterion of the condition of the capillaries and arterioles". In our experience ignorance of this has led to many false interpretations of intracranial infarcts and hæmorrhages. Needless to say, the pictures revealed by modern metallic impregnations are fully used to illustrate modern neuropathological concepts, and again graceful allusion is made to the pioneer work of his predecessor, Ford Robertson, in this field.

[1] "Pathology of the Nervous System: A Student's Introduction", by J. H. Biggart, M.D., with foreword by A. M. Drennan, M.D., F.R.C.P.; 1936. Edinburgh: E. and S. Livingstone. Demy 8vo, pp. 351, with illustrations. Price: 15s. net.

PSYCHOTHERAPY.

In "Individual Psychology: Theory and Practice", Dr. Bevan-Brown, who is the chairman of the Medical Society of Individual Psychology, which was established in London some years ago to further the views of Alfred Adler, has attempted to review some current doctrines of psychotherapy.[1] To the question: "Will it be possible to supersede the psychological by the physiological approach alone?" (in treatment) he replies that in so far as active participation by the patient seems necessary for cure, psychological methods will always be necessary, not only for essentially psychogenic disorders, but also for the alleviation of symptoms of psychogenic origin in somatic diseases.

In lamenting the narrow sectarian attitude of certain schools, Dr. Bevan-Brown exhorts his readers to extract the valuable essences from all sources; much therapeutic success is derived from the suggestive value of the psychotherapist's enthusiasm, whatever his creed. The writer mentions another qualification. He says: "It is a great advantage to a psychotherapist to have had personal experience of what a neurosis means, and to have come through it; I think that to be incapable of such an experience is a disqualification for the work."

The author considers that the essential psychopathology of the Freudian school is the conflict between a sense of guilt and the associated fear on the one hand and infantile sexual cravings (sensuous tendencies as Bevan-Brown prefers to term them) on the other. Adler stresses ideas of inferiority and the sense of insecurity which also engender a state of fear. Whereas Freud atempts to make the patient understand his libido and its fixations, Adler "seeks to encourage and persuade the patient and abandon the false goal of superiority and to encourage and induce him to recognize the need for co-operation and to adopt it as a goal".

It is refreshing to read of Bevan-Brown's belief that in actual practice physicians who proclaim a strict allegiance to either the Freudian or the Adlerian school use methods that are not so dissimilar, and that the personality of the physician is of much greater importance than his theories of psychopathology. Included in the same pamphlet, which is the fifteenth of a series, are short papers on "Heart and Mind" by Dr. G. E. S. Ward, and on the "History and Basis of Individual Psychology" by the late Dr. F. G. Crookshank.

[1] "Individual Psychology: Theory and Practice", by C. M. Bevan-Brown, G. E. S. Ward and F. G. Crookshank (Individual Psychology Medical Pamphlets, Number 15); 1936. London: The C. W. Daniel Company Limited. Demy 8vo, pp. 79. Price: 2s. 6d. net.

The Medical Journal of Australia

SATURDAY, OCTOBER 31, 1936.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: Initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction, are invited to seek the advice of the Editor.

CHRONIC RHEUMATIC DISEASES.

The so-called chronic rheumatic diseases and some allied conditions have recently been brought to the notice of readers of this journal. Dr. A. W. Holmes à Court and Dr. A. L. Ducker have read papers before the New South Wales Branch of the British Medical Association on the treatment of rheumatic affections of the joints. Dr. L. J. A. Parr and Dr. Eva Shipton have reported the results of gastric analysis and of bacteriological investigations in rheumatoid arthritis, osteoarthritis, spondylitis and fibrositis; and Dr. R. F. May has read a paper before the Victorian Branch on physical therapy in the treatment of fibrositis. In all these papers it has been made clear that much remains to be learned of all these conditions, but at the same time the authors have shown that if treatment is undertaken before pathological changes have become advanced, if sufficient care is taken, and if both patient and medical attendant display patience and perseverance, much may be done to lessen suffering, even if a cure cannot be effected. It is not our intention to discuss the papers that have appeared in this journal, but to draw attention to the second annual report of the British Committee on Chronic Rheumatic Diseases appointed by the Royal College of Physicians.[1] The first report was discussed at some length in our issue of January 25, 1936. On that occasion it was pointed out that the committee, which held its first meeting on March 16, 1934, decided that for a trial period of three years it should publish an annual report and that this report should include a critical abstract of the world's literature. The first report was a most valuable document; the second is just as important.

The first paper, and one of the most interesting in the book, comes from L. S. P. Davidson and William Goldie. They deal with chronic infective arthritis, a term that they prefer to rheumatoid arthritis. That the streptococcus plays an important part in the causation of acute rheumatism is generally accepted. Schlesinger and others have advanced another view, that a virus has something to do with its causation. This was discussed in a leading article in this journal on July 20, 1935. Davidson and Goldie show that it is not unlikely that acute rheumatism and chronic infective arthritis (rheumatoid arthritis) may both be due to streptococcal infection. Their general conclusion is that at least an open mind must be kept on this point. There are, they state, three possibilities, each of which deserves careful consideration. In the first place the infective agents in rheumatic fever and chronic infective arthritis may be entirely different (for example, a virus in the former and the *Streptococcus hæmolyticus* in the latter). Secondly, the agents may act in combination to produce the disease. For this purpose it may be assumed, for the sake of argument, that either the streptococcal infection allows the virus to invade the body or, alternatively, that the arthritic changes are due to the streptococcus and the cardiac changes to the virus. The third possibility is that there is only one infective agent, possibly the hæmolytic

[1] "Reports on Chronic Rheumatic Diseases, being the Annual Report of the British Committee on Chronic Rheumatic Diseases Appointed by the Royal College of Physicians", edited by C. W. Buckley, M.D., F.R.C.P.; Number Two; 1936. London: H. K. Lewis and Company Limited. Royal 8vo, pp. 150. Price: 10s. 6d. net.

streptococcus, and that the difference in manifestations depends largely on the different sensitivity which tissues show to infection at different ages. "Thus the endothelial lining of the heart may be assumed to be particularly sensitive in childhood, while the endothelium in the joint and joint tissues is more sensitive in adolescent and adult life." Davidson and Goldie record bacteriological findings in support of their views. They also point out that it is generally agreed that osteoarthritis is essentially a degenerative change in the joints, associated with wear and tear, and that infection is held to be of little importance in its production. They draw attention to a fact that is often forgotten, that persons with osteoarthritis may become affected by a chronic infective arthritis in exactly the same way as persons who are not suffering from osteoarthritis. In these circumstances a mixed picture of both diseases may be present. Additional light is thrown on the relationship of the hæmolytic streptococcus to rheumatoid arthritis in a chapter by G. J. Griffiths, who has carried out antihæmolysin titre and intradermal tests with ground extracts of that organism in 137 cases of the disease.

The possibility of the existence of a tuberculous factor in the ætiology of certain cases of rheumatoid arthritis is discussed in an important contribution by W. S. C. Copeman. In France and Germany descriptions of a polyarthritis of the atrophic type believed to be due to the tubercle bacillus have been published. Copeman has examined forty cases of rheumatoid arthritis with a view to discovering a tuberculous factor. In twelve instances he believed that he could detect such a factor, and in eleven of these Professor Löwenstein reported the isolation of an organism indistinguishable from the bacillus of Koch. It is necessary to remind readers that Löwenstein's methods and results have been severely and adversely criticized by many workers. Copeman sees no reason why a chronic tuberculous focus cannot give rise to an arthritic condition, in the same way as other foci can. Davidson and Goldie express exactly the same opinion. We must, however, accept their conclusion that, though the evidence is suggestive, it is not sufficient to constitute proof. Among the other chapters are one on recent American researches on diseases of joints and related structures by Philip S. Hench, of the Mayo Clinic, and one which is a short summary on recent work on the metabolism of joints, by E. G. L. Bywaters. A chapter to which a special discussion might be given has to do with the psychological aspects of chronic joint disease, by Philip Ellman and Sydney D. Mitchell.

An addenum to this valuable book appears as a slip announcing the establishment of an Empire Campaign against Rheumatism. The committee appointed by the Royal College of Physicians, the Committee on Chronic Rheumatic Diseases, could not from the circumstances of its appointment receive money, nor could it deal directly with the public. A General Committee of the Empire Campaign against Rheumatism was therefore formed, and the Committee on Rheumatic Diseases is to act as Scientific Advisory Committee of the new body, which will shortly be launched.

The objects of the Empire Campaign against Rheumatism are "to institute or to aid research into the causation or treatment of rheumatism in all parts of the country or Empire; to coordinate the results of research work in all existing centres, both in foreign countries and within the Empire, and to educate the public with regard to this group of diseases; to raise funds to be used at the discretion of the Medical Advisory Council for the furtherance of these aims". It would appear that the work started by the Royal College of Physicians will have beneficial and far-reaching effects.

Current Comment.

THE ULTIMATE PROGNOSIS IN ENCEPHALITIS LETHARGICA.

The Parkinsonian syndrome is usually considered to be a relic of an attack of basal encephalitis in an acute or subacute form, which passes off but which leaves in its train irreparable damage to the *substantia nigra* and its environs. Observation of unfortunate sufferers over a number of years has convinced most physicians that, so far from producing a fixed degree of neuro-cellular damage, such as follows anterior poliomyelitis, the

virus of *encephalitis lethargica* continues to smoulder in activity. From time to time a completely new set of symptoms develop, indicating an attack on a fresh zone of neurones hitherto healthy. The patient is still further handicapped and slips slowly down hill into higher grades of stiffness, incoordination and tremor from which there is no return, or indeed relief, since stramonium, belladonna, hyoscine and other helpful drugs seem simultaneously to become less efficacious.

A. Gordon describes two such patients, one of whom he had observed for fifteen years since the onset of his nervous disorder.[1] This man developed his Parkinsonism within four weeks of the onset of the acute phase, and this remained "stationary" for six years. After this period severe oculogyric crises began to occur, especially on emotion or after fatigue. These attacks persisted and now accompany a further motor disorder wherein a sudden rigidity and immobility affect the tongue and last from five to ten minutes. Yet a third fury has attacked him: a sudden irrevocable closure of the eyelids, a bilateral spasm of the *orbicularis oculi*. Gordon's other patient, a woman, had been stiff for six years only. Shortly after the onset of the condition a peculiar speech disorder appeared. During speech the tongue was suddenly protruded and rolled from side to side, while deep furrows showed on either side of the mouth. Following this, in chronological order, she developed paresis of the right arm, an extensor plantar response on the right side, and finally a progressive spasmodic torticollis; that is, both pyramidal and extra-pyramidal systems are now involved.

Therefore attainment of a final fixed phase of the disease is impossible. The adjective "lethargic" can be applied equally well to a slow but inexorable spread of the disease, which is so frequently apparent. This chronicity with activity does not permit us to offer a good prognosis, or even an opinion that arrest has occurred, until no fresh neurological features have been observed for very many years.

RECURRENT HYPERTHYREOIDISM.

There is no need to dwell upon the results of partial thyreoidectomy in the treatment of thyreotoxicosis, for, without entering into any discussion of the relative places of radiation and surgery, there can be no doubt of the excellence of the results obtained by experienced surgeons. It should be pointed out, however, that the word "partial" as a description of the operation of thyreoidectomy is not accurate, for a well-planned operation is now "subtotal" in scope. S. F. Haines and J. de J. Pemberton, in a recent article from the Mayo Clinic, give the mortality rate from that clinic as 0·8% in a series of approximately nine thousand patients.[1]

In these operations a postero-mesial portion of each lobe is preserved, equivalent to from one-sixth to one-third of a lobe of normal size, and the results, both immediate and ultimate, have been very gratifying. But it has been found that after a lapse of five years from 2% to 5% of the patients show a recurrence of symptoms to an extent sufficient to warrant further operation. This type of case causes the medical attendant some anxiety at times, for both he and the patient may not be keen to seek the benefits of surgery once more. Some of these patients are successfully treated by radiation, but if they are subjected to further operation the interesting question is how much of the remaining thyreoid tissue must be removed. In practice, as Haines and Pemberton point out, it is found that regeneration of the residual tissue has taken place; sometimes quite a considerable knob of hyperplastic gland can be seen or felt in the neck. Sometimes, however, the enlargement is not external and it may be retrotracheal or even substernal and thus tucked away out of the reach of the examiner's fingers; this tendency is due, as these authors remark, to the presence of unyielding scar tissue in the anterior part of the neck. The authors report that 25% of the patients with recurrence of toxic symptoms may have their condition controlled by the administration of iodine, and, further, that the continued exhibition of iodine will control them for years. When the thyreoid tissue may easily be palpated this is not so, and they find that in most of these cases further resection of the thyreoid remnant is necessary. Three case histories are set out in detail, and from the perusal of these it appears that excellent results were obtained by the removal of a further piece of thyreoid tissue. The points of particular interest are the fact that the thyreoid remnant was small and also that the piece of tissue removed was extremely small; this was only one gramme or less. Haines and Pemberton think that the degree of activity of the remaining portion of the gland depends not entirely upon the amount of glandular tissue, but rather on a persistence or recurrence of whatever stimulus it was that originally produced the disease. They consider, however, that in the majority of cases not only relief of symptoms is gained, but actual subsidence of the disease. With this last statement all will not agree, for it is very difficult to assess degrees of recovery, and it must be remembered that thyreotoxic patients are as a rule drawn from a particular class of person whose temperament is difficult to regard as "normal" or average at any time. But it is important to realize that, should a second operation be necessary in the treatment of patients whose remaining thyreoid tissue is impalpable and very small, the removal of a minimal amount may successfully control the progress of the thyreotoxic state.

[1] *Archives of Internal Medicine*, June, 1936.

[1] *Archives of Internal Medicine*, June, 1936.

Abstracts from Current Medical Literature.

BACTERIOLOGY AND IMMUNOLOGY.

Immunity in Tuberculosis.

MAX B. LURIE (*The Journal of Experimental Medicine*, June 1, 1936) reports the results of his further studies in tuberculosis. The use of an agar focus produced by the subcutaneous injection into a rabbit's limb of 5·0 cubic centimetres of a 6% emulsion of agar in saline solution with a known admixture of tubercle bacilli of bovine origin and trypan blue or carbon particles, and a control injection of agar *minus* the bacilli in the opposite limb, led to much additional information on immunity in tuberculosis. Three series of rabbits were used, one normal, one vaccinated with *Bacille Calmette-Guérin*, and one with the Ravenal strain of bovine bacilli. Controls of the various factors involved were carried out, the first establishing that in the agar mixture maintained at 37° C. the bacilli died out in eleven days; if given blood plasma in addition, they multiplied. If implanted in the tissues in a Chamberland filter, so that the access of body fluids was prevented, they died within fourteen days. So that *in vitro* or *in vivo* the bacilli die in the absence of body fluids. In the normal animals the bacilli multiplied rapidly. The lymphatic glands draining the site of injection were sterile twenty-four hours after the injection; but later than that there was a slowly increasing number, not only in these glands, but in the deep glands, the spleen and the lung. In the animals vaccinated with *Bacille Calmette-Guérin* the organisms multiplied slowly, the draining glands were infected at a much slower rate, and the viscera contained a much smaller number or perhaps no demonstrable bacilli. In tuberculous rabbits the organisms multiplied very slowly; they were present early, but did not accumulate in the glands, and the organs showed no evidence of infection. In the response of the tissues of the host several facts emerge on histological examination. The agar focus alone, without bacilli, was broken up by fluid exudate and polymorphonuclear cells, and the particles of agar were aggregated into clumps. In the centre there are no cells; these accumulate later. Mononuclear cells and fibrin form layers of a capsule with macrophages and foreign-body cells. In the bacillary focus the organisms were intracellular and extracellular, and always multiplied more in the zone nearer the skin, while the proliferation of tuberculous tissue was always greater nearer the muscle. Caseation took place in five weeks; many bacilli could be seen within the macrophages. In vaccinated rabbits the primary reaction was more intense, the islands were larger, the cells penetrated to the centre, the carbon particles were in larger clumps, and the bacilli were fewer in the lesion. Macrophages and fibroblasts appeared earlier, and after five weeks the fibrin-permeated mass of agar contained few bacilli. The glands of the normal animal, on the other hand, were slower to react than in the vaccinated one, where the bacilli appeared early and then disappeared; in the normal they arrived slowly, but multiplied steadily. In the normal rabbit's lungs bacilli could be found in the first week, in the vaccinated one's not till the second week, and then in far fewer numbers. The tuberculous rabbits showed somewhat similar reactions to those of the vaccinated ones in focus and glands; but the organisms invading the deeper glands and viscera were entirely suppressed. The dyestuffs were retained more at the site of injection than in the normal rabbit, but the deep lymphatics showed evidence of an increased lymph flow. The author concludes that some humoral factor in the vaccinated or tuberculous rabbit inhibits the growth of the bacilli by a fibrin barrier and agglutination, but does not prevent their spread from the focus if the infecting dose be large. The increased capacity of the phagocytes following on this is the most important factor in the manifestation of immunity, as the polymorphonuclear cells soon disappear. A virulent infection is more effective than a mild one in protecting the animal, and this is expressed in a quantitative increase in the same immunity factors that operate in the vaccinated animal.

Neutralizing Antibodies against Influenza Virus.

THOMAS FRANCIS AND T. P. MAGILL (*Journal of Experimental Medicine*, May, 1936) have investigated the serum of 136 individuals of all ages, from the new-born to the eighth decade, for the presence of neutralizing antibodies against a strain of influenza virus obtained from an epidemic in Puerto Rico. The virus was maintained by serial passage through mice; the infected lung was ground with alundum suspended in physiological salt solution and then centrifuged; the supernatant fluid was inoculated into the nasal passages of normal mice. For the actual experiments four mice were used for each specimen of serum to be tested; they were observed for six days after the intranasal inoculation of 0·3 cubic centimetre of virus mixed with 0·3 cubic centimetre of serum. The results represent the average lesions in the lungs of the four mice used. The four grades of positive lesions represented no or partial protection, incomplete, and complete protection. Complete protection was afforded by 49% of all sera tested, partial protection by 29%, and 21% were considered to be non-protective. In those individuals with a definite history of previous influenza, the percentage of protective sera was higher (55·5%) than in those without that history (39·3%). Those patients with a recent history gave a much higher proportion than those whose illness occurred in the 1918 epidemic. Some of these sera were used for purposes of comparison with the results obtained by the Andrewes quantitative method against a standard hyperimmune horse serum. While there was not complete agreement in the partial protective sera, there was a rough parallelism in the results. The serum of the new-born is almost completely protective; during the first year of life the serum becomes almost completely non-protective. The persistence of antibodies after an attack of influenza has not been followed for more than one year. The sera were also tested against the virus of swine influenza. The sera in the age groups under ten years were not effective, while sera in the older groups were effective in a large proportion. Studies with the two viruses showed that the first response to infection is specific for the virus employed, but that the response to reinfection may develop a wider zone, which may embrace the heterologous virus.

The Production of β Toxin by Staphylococci.

LUCY M. BRYCE AND PHYLLIS M. ROUNTREE (*The Journal of Pathology and Bacteriology*, July, 1936) have examined 73 strains of staphylococci for the production of β toxin. This type of toxin is defined by Glenny and Stevens as having no hæmolytic action on rabbit erythrocytes, hæmolysing sheep cells only if incubation is followed by refrigeration, and producing a flush but no necrosis of the skin on intradermal injection into guinea-pigs, but being lethal to mice. This is in direct contrast to α toxin, which hæmolyses both sheep and rabbit erythrocytes at 37° C., produces necrosis on intradermal injection into guinea-pigs, and is lethal to mice. The strains examined were from human and bovine sources. The majority of human strains produced α toxin and a wide zone of hæmolysis after incubation. Similar results were obtained after refrigeration. A number of the bovine strains caused partial hæmolysis after incubation and a wide zone of complete hæmolysis after refrigeration, and the varying width of the zones led to the conception that some strains produced both α and β toxin, while some were true β formers. The production of soluble toxin in nutrient broth was then tested and it was found that the bovine strains causing hæmolysis had no action on rabbit blood cells and marked increase of activity after refrigeration. Some strains of pure β toxin formers were then tested for titre of hæmolytic activity, and considerable variation under identical conditions was found. A greater production of toxin was found in an atmosphere containing 20% of carbon dioxide than in air.

Pure toxin showed increased activity after refrigeration, and a minimum time of two and a half hours was found to be necessary for this. In toxin-antitoxin neutralization experiments the presence of serum appeared to have a retarding effect on the reaction. Intradermal injection of the toxin into rabbits led to an erythematous reaction in a dilution of 1 in 4; but no effect was produced in higher dilutions. Intravenous injection into the tail vein of mice produced no effect in doses of 0·05 to 0·25 cubic centimetre. In rabbits doses of 0·5 to 2·0 cubic centimetre caused death overnight. *Post mortem* examination showed gross œdema of the lungs and pin-point hæmorrhages in the thymus glands, indicating that β toxin is far less potent than α toxin, which causes death within a few minutes when given in similar amounts. The authors remark that β toxin is much more heat-resistant than α toxin, being still active after fifteen minutes at 60° C.; α toxin becomes inactivated at a slightly faster rate. The conversion of β toxin into toxoid can be effected by formalin. An antitoxin can be produced by the immunization of rabbits with toxin or toxoid or a mixture of both; but β antitoxin could not be produced by instilling the living cultures intranasally. The antitoxin of either is inactive against the toxin of the other. The two toxins are similar in conditions favouring production, their heat-resisting powers, and reactions in forming toxoid. The predominance of β toxin in strains from bovine sources is stressed, and the possibility of its being a variation from the classical α strain is the subject of further study.

HYGIENE.

The Influence of Odour upon Appetite.

C.-E. A. WINSLOW AND L. P. HERRINGTON (*American Journal of Hygiene*, January, 1936) state that strongly offensive odours may nauseate, but that the prolonged effect of odours of low intensity not subjectively conspicuous is still under discussion. The New York State Commission on ventilation found that the amount eaten of a standard luncheon was significantly greater on fresh air days than on stagnant air days. The authors adopted the New York State Commission's technique. Seven young men spent four or five mornings a week for three months under observation. The amount of circulating air, its temperature and humidity remained constant. Recirculation permitted some increase of body odour on certain days; house dust from vacuum cleaners was added; metabolism tests and comfort estimates were made; standard luncheons were supplied and the residue was weighed. Calorie consumption varied from 2,244 to 1,132. House dust consisted of dust dirt 40% to 49%, inorganic (plaster) nil to 22%, extraneous 14% to 30%, and "fuzzy" matter 13% to 30%. This fuzzy matter chiefly consisted of wood and cellulose fibres from paper and cotton cloth. The moistened house dust (500 grammes) was placed on a uniformly hot metal plate. On no occasion did the subjects know of the odour, though it was obvious to the newcomer. The geometric mean of the calorie consumption was used for comparison of odour as against no odour days. A significant decrease in average food consumption occurred on the odour days; the decrease was as much as 13%, an amount nine times the probable error. This clearly demonstrable effect of an odour from house dust (an odour not consciously perceived) may be regarded as definitely harmful to health.

Dermatitis from Synthetic Resins and Waxes.

L. SCHWARTZ (*American Journal of Public Health*, Volume XXVI, Number 6, 1936) states that the modern chemist has evolved many commercial applications of synthetic resins for making plastics—telephone receivers, pipe stems, cigar holders, bottle caps, teeth plates, bracelets *et cetera*—for varnishes and floor finishes and a great variety of miscellaneous cements, dishes, containers, insulators, wall boards *et cetera*. The synthetic resins and waxes include the well-known "Bakelite", a phenol-formaldehyde resin, ureaformaldehyde, coumaron, glyptal, vinyl, furfural and chlorinated resins, ester gums and chlorinated waxes. In making the phenol-formaldehyde resins, formaldehyde gas is given off and tends to concentrate in the room air, causing in sensitive persons dermatitis of the exposed parts and covered parts affected by friction. Mineral oil used in the carriers absorbs 2% phenol and formaldehyde. Oil splashed on clothes produces oil folliculitis papules and pustules on a diffuse erythema; girl workers show it on the hands and arms. The completed article causes no trouble. Moulding resin, when ground, produces excessive dust, and formaldehyde is present. The real skin irritant is formic acid. The wrist, beltline, shoe tops and collar line require observation; the eyelids may be affected; cold weather and reduced bathing favour their occurrence. The ureaformaldehyde resins as well as the phenol-formaldehyde resins contain "hexa" (hexamethylene tetramine), used extensively as an accelerator and stabilizer; if any is uncombined, dermatitis may occur on contact. The patch test is useful to detect sensitive people. The chloronaphthalenes and chlorodiphenyls form synthetic waxes. Fumes of the former cause acne on the face and neck and can even penetrate clothing. In dealing with prevention, the author urges the total enclosure of the process and, failing this, the use of proper exhaust hoods; he also urges the regular and frequent removal of all dust and the provision for workers of lockers and showers to permit of complete cleanliness and change of clothes. New applicants should be examined for skin diseases and the sufferers eliminated. If in new workers mild eruptions arise, the attempt should be made to develop immunity ("hardening"). Periodic medical examinations for dermatitis or toxic symptoms are essential.

Lead in Drinking Water.

G. N. QUAM AND ARTHUR KLEIN (*American Journal of Public Health*, August, 1936) report the results of an investigation of the lead content of water supplies in New York. They employed a colorimetric and a titrimetric method. The reagent used was diphenylthiocarbazone. Samples from five active pipe lines were examined. These included water drawn from the pipe line, water from the tap and water stored in lead pipes for a known period at room temperature. Water in new lead pipes, 12·5 centimetres (five inches) in diameter, after twenty days' contact, contained 73·75 milligrammes of lead per litre. The authors state that continuous flow helps to prevent such accumulations. All domestic pipe lines made even partly of lead should be flushed out after any period of rest before use of the water for drinking or cooking.

Entamœba Histolytica.

BERTHA K. SPECTOR (*American Journal of Public Health*, August, 1936) discusses the life history and characters of *Entamœba histolytica*, and states that there are certain clinical differences between varieties with small cysts (7 to 10 micromillimetres) and those with large cysts (15 to 19 micromillimetres). The complement fixation reaction differs. In stools containing blood and mucus very large motile types are seen, while in soft stools the small variety is mostly seen. The author is of the opinion that rectal ulceration and liver abscess do not occur except when the infection is with the large type of organism. Though the symptoms they produce are milder, the strains that produce small cysts are definitely pathogenic.

A Mosquito Trap.

RAMKRISHNA GORE (*The Indian Medical Gazette*, August, 1936) describes a simple mosquito trap that he has devised for use in villages. Four pieces of blanket, each 17·5 by 12·5 centimetres, are hung from the rim of an earthen cooking pot, to form a cylinder inside the pot. Each piece of cloth is balanced by a stone, outside the pot, attached to the cloth by a string. The bottom edges of the cloth should be ten centimetres from the bottom of the pot, to allow the mosquitoes access to the darkest parts. The trap is placed in a dark corner, where mosquitoes have been observed to rest. During the day the neck of the pot is covered and the trapped insects are killed by the heat of the sun or by fumigation. The author states that as many as 245 mosquitoes have been caught in one of these traps in one day.

British Medical Association News.

MEDICO-POLITICAL.

ANNUAL MEETING OF THE DELEGATES OF THE AFFILIATED LOCAL ASSOCIATIONS OF MEMBERS WITH THE COUNCIL OF THE NEW SOUTH WALES BRANCH OF THE BRITISH MEDICAL ASSOCIATION.

THE annual meeting of the delegates of the Local Associations affiliated with the New South Wales Branch of the British Medical Association was held at the British Medical Association House, 135, Macquarie Street, Sydney, on October 2, 1936, DR. E. H. M. STEPHEN, the President, in the chair.

The following delegates were present: Dr. Kevin Byrne (Canterbury-Bankstown Medical Association), Dr. A. T. Roberts (Central Northern Medical Association), Dr. R. O. Williams (Central Southern Medical Association), Dr. G. N. M. Aitkens (Central Western Medical Association), Dr. A. M. Gledden (City Medical Association), Dr. A. S. Curtin (Eastern Suburbs Medical Association), Dr. W. F. Simmons (Illawarra Suburbs Medical Association), Dr. B. G. Wade (Kuring-gai Medical Association), Dr. A. G. Brydon (Northern District Medical Association), Dr. H. H. Lee (South-Eastern Medical Association), Dr. E. A. Tivey (Warringah Medical Association), Dr. J. T. Paton (Western Medical Association), Dr. C. E. Vickery (Western Suburbs Medical Association).

The following members of the Council were present: Dr. G. M. Barron, Dr. George Bell, Sir Charles Blackburn, Dr. K. S. M. Brown, Dr. A. J. Collins, Dr. A. M. Davidson, Dr. L. A. Dey, Dr. J. A. Dick, Dr. A. J. Gibson, Dr. Hugh Hunter, Dr. C. H. E. Lawes, Dr. R. J. Millard, Dr. A. A. Palmer, Dr. J. C. Storey, Dr. Wilfred Vickers, Dr. A. S. Walker, Dr. G. C. Willcocks.

The Editor of THE MEDICAL JOURNAL OF AUSTRALIA, who was absent from the State, was represented by Dr. W. L. Calov.

Welcome of Delegates.

Dr. E. H. M. Stephen, as President of the New South Wales Branch of the British Medical Association, welcomed the delegates. He stressed the value of the annual meetings of delegates, both to the Council and the members of the Local Associations themselves. He impressed on the delegates the importance of reporting the proceedings to their Local Associations, and remarked that there had been occasions on which delegates had been all too silent on their return.

Friendly Society Lodge Practice.

The Income Limit of Members of Lodges.

It was resolved, on the motion of Dr. A. S. Curtin, seconded by Dr. W. F. Simmons:

> That it be suggested to the British Medical Association Council that the attention of the Friendly Societies Association should be drawn to the clause in the Common Form of Agreement relating to income limit as regards new members, as well as old members, excluding those who joined before 1914.

Dr. A. S. Curtin pointed out that at one time certain forms had been issued to be filled in by members of lodges, setting out their income *et cetera*. He was doubtful whether these forms were available now. He asked how were medical officers to obtain a decision as to a member's means. He thought it would be better perhaps if the lodge secretaries obtained the information for the medical officers. Most medical officers had members on their lists who should not be on such lists. He thought that the time was now opportune to point out that some of the clauses of the Common Form of Agreement were being ignored.

Dr. W. F. Simmons said that the members of the Illawarra Suburbs Medical Association insisted on the filling in of the forms mentioned by Dr. Curtin. In Dr. Simmons's district there was a system by means of which the name of every person who had been refused admission to a lodge, on medical or any other grounds, was notified without delay to every medical officer in the district.

Dr. Hugh Hunter said that the forms mentioned used to be sent out in batches of ten, with every Common Form of Agreement; now they were sent only when asked for.

Dr. C. H. E. Lawes pointed out that any member who had joined since 1914 could be dealt with by the medical officer himself.

Dr. A. G. Brydon pointed out that in country districts a man's income might vary from year to year. It was therefore very difficult to assess a member's income. The Northern District Medical Association was in favour of the observance of the clause relating to income limit, as far as possible.

Dr. J. T. Paton, Dr. H. H. Lee, Dr. E. H. M. Stephen, Dr. George Bell and Dr. A. T. Roberts also spoke.

The Lodge Member's Right to Choose his Medical Officer.

It was proposed by Dr. A. S. Curtin, seconded by Dr. W. F. Simmons:

> That it be suggested to the British Medical Association Council that the attention of the Friendly Societies Association should be drawn to the clause in the Common Form of Agreement relating to the fact that the name of any new lodge member shall be placed on the list of the medical officer who examines and passes him for membership.

Dr. A. S. Curtin said that an applicant for membership of a lodge had appeared before a member of the Eastern Suburbs Medical Association and had been found to be not entitled to medical benefits because of his financial status. This applicant had then visited another medical officer, who passed him; and his name had then been placed on the list of the medical officer who had refused to pass him in the first place. Dr. Curtin thought, therefore, that the clause should be observed.

Dr. W. F. Simmons said that it was just such incidents as that mentioned by Dr. Curtin that had caused the members of the Illawarra Suburbs Medical Association to institute the procedure that they now followed in regard to the notification of names of persons found unsuitable for participation in the medical benefits of a lodge.

Dr. H. H. Lee opposed the motion, remarking that in the country a man might come some distance to town to be medically examined for lodge membership, only to find that the medical officer he wanted could not see him. This man should be able to go to another medical officer for examination and still to have his name on the list of the medical officer of his choice. It was unfair to expect him to make another journey to town, perhaps at considerable inconvenience to himself.

The motion was not carried.

Charges for Special Services.

It was resolved, on the motion of Dr. W. F. Simmons, seconded by Dr. A. S. Curtin:

> That the amendment of the Common Form of Agreement be clarified by the Council of the New South Wales Branch of the British Medical Association, so that members may be informed exactly for which services charges may not be made.

Dr. W. F. Simmons asked those present to note the portion of the monthly notice issued by the Branch, dated September 14, 1936, which read as follows:

> Medical Officers of Friendly Society Lodges are advised that the Council is of the opinion that there should be no charge for syringing of ears nor for the removal of splinters from the hands or feet unless

the use of a local or general anæsthetic is required; and that there should be no charge for removal of a foreign body from the eye unless a local or general anæsthetic is required.

A member of the Illawarra Suburbs Medical Association had sent a lodge member an account for a fee for syringing ears. The lodge member had reported the matter to his lodge secretary, and eventually the Friendly Societies Association had approached the Council. Dr. Simmons did not know that the procedures that could not be charged for included the syringing of ears. He thought there should be some definite direction concerning the procedures that could not be charged for.

Dr. J. T. Paton said that it would be better to have a direction concerning the services that could be charged for.

Dr. C. H. E. Lawes expressed the opinion that the resolution was unnecessary. Medical officers should be guided by the Common Form of Agreement.

Dr. L. A. Dey said that the feeling of the Council was that procedures requiring local or general anæsthesia should be charged for, and no other.

Dr. Hugh Hunter said that injections for immunization required no anæsthesia. Were they not to be charged for? The point to be decided was: what were special services? He did not think there were many complaints; he thought it would be better to leave things as they were and deal with complaints as they came along.

Dr. C. E. Vickery and Dr. Kevin Byrne also spoke.

Immunization against Diphtheria.

It was resolved, on the motion of Dr. C. E. Vickery, seconded by Dr. B. G. Wade:

> That this meeting of delegates recommends to the Council the advisability of circularizing the secretaries of friendly society lodges to the effect that medical officers of lodges are prepared to immunize children against diphtheria for a standard fee to be fixed by the Council.

Dr. C. E. Vickery said that the chief reason for the proposal was that many people would prefer to bring their children to a medical practitioner privately to be immunized at a fee of, say, one guinea, rather than to some public place, along with crowds of others.

Dr. C. H. E. Lawes agreed that the secretaries of lodges should be informed that medical officers were prepared to do this work; but he thought that medical officers should inform the lodge secretaries themselves. All these things cost money. It would be a big task for the Council.

Dr. L. A. Dey said that Dr. Lawes's objection would be overcome if the Council merely notified the Friendly Societies Association.

Dr. Kevin Byrne said that the Canterbury-Bankstown Medical Association thought that the fee should vary according to the number of children of a family immunized.

Dr. H. H. Lee, Dr. G. C. Willcocks, Dr. A. G. Brydon and Dr. E. A. Tivey also spoke.

It was resolved, on the motion of Dr. C. E. Vickery, seconded by Dr. J. T. Paton:

> That, for the guidance of the Council, this meeting of delegates suggests that the fee (for immunization against diphtheria) be one guinea for each such child.

Dr. A. T. Roberts also spoke.

Sale or Transfer of Lodge Practice.

It was resolved, on the motion of Dr. A. S. Curtin, seconded by Dr. A. G. Brydon:

> That it be suggested to the British Medical Association Council that the following regulation should be adopted by all Local Associations in New South Wales:
>
> > After the sale or transfer of a practice in which the vendor or transferor held lodge appointments, the committee of a Local Association shall not approve of the sanction of the British Medical Association Council being given to the acceptance of appointment as medical officer of a friendly society lodge by any medical practitioner, excepting a *bona fide* purchaser, commencing practice in the district within a radius of one mile from such sale or transfer until a period of six months has elapsed from the date of such sale or transfer.

Dr. R. O. Williams said that the Central Southern Medical Association thought that the period should be twelve months rather than six.

Dr. L. A. Dey, Dr. Hugh Hunter, Dr. W. F. Simmons, Dr. Kevin Byrne, Dr. B. G. Wade and Dr. E. H. M. Stephen also spoke.

Procedure in the Transfer of a Lodge Practice.

It was resolved, on the motion of Dr. Hugh Hunter, seconded by Dr. B. G. Wade:

> That Local Associations be informed that it has been resolved:
>
> > That the recognized procedure for the transfer of lodge practices from one medical officer to another should be made in the following manner: The transferor should forward all signed agreements to the British Medical Association office for the issuing of new agreements in the name of the transferee.

Dr. C. E. Vickery, Dr. E. H. M. Stephen, Dr. C. H. E. Lawes and Dr. W. F. Simmons took part in the discussion.

The Classification of Honorary Medical Staffs at Base Hospitals.

It was resolved, on the motion of Dr. J. T. Paton, seconded by Dr. G. N. M. Aitkens:

> That the British Medical Association investigate the problems which have arisen with the establishment of base hospitals and the system of classification of medical staffs.

Dr. J. T. Paton pointed out that there were many difficulties in the way of the institution of specialist practices in the country. He suggested that it might be possible for a young man to be appointed to a hospital staff first as a general practitioner. It would not be possible in a town such as Orange for a man to make a living out of either surgery or medicine alone, for instance. He thought that the British Medical Association should make the necessary investigations so that general practitioners should not be injured by the base hospital system.

Dr. A. G. Brydon pointed out that the base hospital scheme was only in its infancy and it would be only by a gradual evolution that men engaged in special practice would appear in the country. It would be a hardship to many men if they had to give up their general practice simply because they were classified as specialists on the honorary staffs of base hospitals.

Dr. B. G. Wade pointed out that there were some anomalous situations at certain suburban hospitals. For example, at Ryde District Hospital there was no division of members of the honorary staff into physicians and surgeons, whereas at Hornsby District Hospital there was. It was true that these were not classified as base hospitals.

Dr. A. T. Roberts said that similar difficulties had arisen in Newcastle twenty years ago. In the course of time the difficulties had resolved themselves. The system had proved beneficial to medical practitioners in Newcastle. Of the honorary medical officers of the Newcastle Hospital, 50% were still general practitioners.

Dr. A. J. Collins said that at a meeting of the Council of the New South Wales Branch of the British Medical Association with the Hospitals Commission the general opinion had been that the base hospital system was advantageous to the community. No medical practitioner would lose his patients, excepting those admitted to public wards. Surgeons could attend medical cases in

private or intermediate beds, and physicians could attend surgical cases in like circumstances. He agreed with Dr. Paton that the Association should investigate the necessity for specialists. At the meeting he had mentioned, only individual opinions had been expressed. There were many questions to be answered. For example: were base hospitals required in all large country centres and would they be to the advantage of medical practitioners in all such places? He agreed with Dr. Paton concerning the advisability of appointing honorary general practitioners to the staffs of base hospitals. He thought the system of appointing clinical assistants might be considered, the clinical assistant to practise as both physician and surgeon.

Dr. H. H. Lee expressed the opinion that men in the country should not be classified as physicians or surgeons.

Dr. C. H. E. Lawes also spoke.

The British Medical Agency Limited.

Dr. A. M. Davidson gave a short account of the activities of the British Medical Agency Limited. He appealed to the delegates to support the agency. He pointed out that in England a company approved by the British Medical Association had been formed for the purpose of financing members desirous of purchasing panel practices. The British Medical Agency Limited had had a similar object in view ever since its commencement; but it had been unable to achieve this object with its own funds. Endeavours were now being made to form a separate company to provide finance for those desirous of buying practices *et cetera*. He appealed to delegates to impress on the members of their Local Associations the importance of supporting the agency and giving it the first chance in the sale of practices.

Dr. K. S. M. Brown also spoke.

Mass Immunization against Diphtheria.

It was resolved, on the motion of Dr. A. G. Brydon, seconded by Dr. E. A. Tivey:

> That the Council request the Director-General of Public Health to have Schick tests carried out on a series of children who have been immunized against diphtheria in the recent campaign.

Dr. A. G. Brydon said that a municipal council in his district had wanted to have 100 children immunized against diphtheria. The nearest medical practitioner was 22 miles away. The council had asked Dr. Brydon, as Honorary Secretary of the Northern District Medical Association, what the fees would be. Dr. Brydon had said: "The mileage fees and the cost of four visits." This had involved a considerable expense to the municipality. Dr. Brydon pointed out that the Department of Public Health disapproved of the method of immunization by one injection; but there were difficulties in giving four injections. The question arose: was it better to employ the method of giving one injection or not to attempt immunization at all? He thought a series of Schick tests should be done in order to test results. He wanted to know which was the better method.

Dr. E. H. M. Stephen said that in a series of 1,000 cases in which immunization had been carried out according to the method approved by the Department of Public Health there had been no untoward effects, whereas in some places the use of toxoid had been followed by severe reactions. The Director-General of Public Health did not want the public to be discouraged by any bad results. Dr. Stephen agreed with Dr. Brydon that Australian statistics were important.

Dr. J. T. Paton and Dr. L. A. Dey also spoke.

British Medical Association Debentures.

It was resolved, on the motion of Dr. R. O. Williams, seconded by Dr. A. S. Curtin:

> That Local Associations who hold British Medical Association building debentures hand over the same to the Medical Benevolent Association of New South Wales.

There was no discussion.

Varicocele in Applicants for Government Service.

It was moved by Dr. A. T. Roberts, seconded by Dr. B. G. Wade:

> That it be a recommendation to the Council to approach senior medical officers of the Naval, Military and Air Forces and the public services with a view to removing the bar on applicants for those services who are suffering from varicocele, unless the condition is so advanced as to cause real disability.

Dr. A. T. Roberts said that there were numerous operations for varicocele for which there was apparently no necessity. It was not an unusual thing for a man to be passed as fit by a medical practitioner and then declined by a medical officer of the service that he wished to enter.

Dr. Wilfred Vickers read the instructions issued to army medical officers relating to varicocele. He said that a man was not pronounced unfit on account of this disability unless the varicocele was severe; that is, unless the mass of veins was so great that it hung below the testicle, or when the man was standing erect the cord was so elongated that the testicle hung lower than normal. In the army it was very easy for a man to malinger on account of varicocele. If the instructions to medical officers were adhered to there should be no difficulty.

Dr. A. A. Palmer said that varicocele was a bar to admission to the Police Force, and it should be so. Varicocele was a fruitful cause of malingering. It was impossible to say that a man had no pain from varicocele. It was said that if operation was performed for varicocele the man might malinger on account of the scar. Dr. Palmer had never seen a man malinger on account of the scar.

Dr. Kevin Byrne also spoke.

The motion was not carried.

Resolutions Carried at Annual Meetings of Delegates.

It was resolved, on the motion of Dr. H. H. Lee, seconded by Dr. W. F. Simmons:

> That the Secretary of the New South Wales Branch of the British Medical Association be requested to inform this meeting what action (if any) has been taken throughout the year to accomplish the fulfilment of the resolutions carried at the last conference of the country delegates with the Council of the British Medical Association and what result (if any) has been achieved.

Dr. H. H. Lee said that no more was heard of many of the resolutions carried at the annual meeting of delegates of Local Associations with the Council. He thought that Local Associations were entitled to be told the results.

Dr. Hugh Hunter assured the meeting that everything was investigated by the Council.

Dr. A. M. Davidson also spoke.

Publication of Names of Persons Transported by Ambulance.

It was resolved, on the motion of Dr. B. G. Wade, seconded by Dr. A. T. Roberts:

> That the Council of the New South Wales Branch of the British Medical Association be asked to take steps to request ambulance transport bodies not to publish the names and diseases of patients whom they transport.

Dr. B. G. Wade said that, apart from other considerations, a patient's business might suffer through its becoming known that he had met with an accident or had been taken to hospital for some reason. The patient's going to hospital was the patient's own affair and should not be made public.

Dr. Hugh Hunter pointed out that it was not necessary for a medical practitioner to give the ambulance authorities full details of any case in which ambulance

transport was required. It was necessary only to state whether the case was medical, surgical, infectious or obstetrical.

Dr. A. M. Davidson also took part in the discussion.

Aerial Travel: Safe Landing Grounds.

It was resolved, on the motion of Dr. Hugh Hunter, seconded by Dr. George Bell:

> That the question of safe landing grounds in aerial travel be discussed with a view to obtaining the help of Local Associations in approaching municipal authorities.

It was resolved, on the motion of Dr. H. Hunter, seconded by Dr. Kevin Byrne:

> That the delegates be asked to explain the matter to their Local Associations and ask them in each case to approach the municipal council with a view to providing suitable landing grounds.

Dr. Hugh Hunter pointed out that frequently medical men were called urgently to the country from the city and were required to travel by air. The transport of patients by air was a common occurrence and was becoming commoner. It was unfair to medical men and patients and pilots not to have proper landing grounds. The matter appeared to be one for consideration by municipal authorities. The Federal Government was concerned only in the provision of landing grounds at suitable places for strategical purposes. It had been suggested that the Council of the New South Wales Branch of the British Medical Association should approach the municipal authorities in various parts of the State.

Dr. George Bell said that the matter had been discussed by the Federal Council; but that body had referred it to the Branches with the suggestion that they should approach the various municipal councils. Dr. Bell pointed out that the cases in which aeroplane transport was required were mostly urgent cases, and frequently the only direction the pilot got was to land on such-and-such a paddock or some area thought to be suitable in the vicinity of the town. The difficulties that the pilot had to overcome were considerable, and there might be risk.

Dr. Kevin Byrne said that he understood that insurance companies would not give insurance cover excepting on regular mail routes.

Dr. A. M. Davidson said that insurance companies would provide a cover now, providing the pilot and machine were registered. All that was necessary was for the prospective traveller by air to notify the insurance company beforehand. The company would add the cost to the next premium when it fell due.

Dr. A. G. Brydon also spoke.

Workers' Compensation Act.

Death of Injured Workers.

It was proposed by Dr. R. O. Williams, seconded by Dr. J. T. Paton:

> That it be a recommendation to the Council that steps be taken to have the anomalies rectified in the matter of the difficulty of collection of medical fees in cases where injured workers die within seven days of receiving their injuries.

After discussion, in which Dr. Hugh Hunter, Dr. L. A. Dey and Dr. A. M. Davidson took part, Dr. Williams, with the permission of his seconder, withdrew the motion.

Injured Workers in Intermediate Wards.

It was resolved, on the motion of Dr. R. O. Williams, seconded by Dr. B. G. Wade:

> That it be a recommendation to the Council that steps be taken to have rectified the anomalies involved in the case of Dr. R. V. Graham and the intermediate patient who did not pay him fees in Lewisham Hospital recently.

Dr. E. H. M. Stephen briefly outlined the case in which Dr. R. V. Graham had sued for fees due to him and had lost. The grounds on which the verdict had been based were that Dr. Graham had come to no definite agreement with the patient in regard to fees prior to the commencement of treatment. Dr. Stephen said that the Council had not been inactive and had done all that could be done in the short time that had elapsed since the case.

Dr. L. A. Dey said that certain regulations had been laid down under the *Public Hospitals Act* and people generally had relied on Schedule "E"; but according to the Act it was necessary to have a contract signed by the patient. Therefore this should be done, and it was best to state in the contract that fees would be according to Schedule "E".

Dr. J. C. Storey and Dr. W. F. Simmons also spoke.

Free Choice of Medical Attendant.

It was moved by Dr A. S. Curtin, seconded by Dr. C. E. Vickery:

> That the opinion of the British Medical Association Council should be asked regarding the advisability of having notices prepared for display in the waiting rooms of members, drawing attention to the right of injured workers as to free choice of medical attendant under *The Workers' Compensation Act* and *The Transport Act*.

Dr. Kevin Byrne, Dr. A. M. Davidson, Dr. W. F. Simmons and Dr. G. N. M. Aitkens took part in the discussion.

The motion was not carried.

The High Costs of Medical Attendance in the Pastoral and Dairying Industries.

Dr. Hugh Hunter said that the Council had been approached by representatives of the pastoral industries in regard to the high cost of medical attention in pastoral and dairying districts. It appeared that the dairying industry was particularly hazardous, and the insurance rates in this industry had been increased. Dr. Hunter quoted figures to show that the costs of medical attention in the country had increased considerably during the past few years. He asked delegates for information concerning the reason for this increase.

Dr. W. F. Simmons suggested that one reason might be that men engaged in the pastoral and dairying industries frequently worked seven days a week, against the five days a week of men in the city.

Dr. L. A. Dey suggested that men in the country were more liable to minor injuries of the hands.

Dr. J. T. Paton said that a far greater number of minor injuries were attended to now than formerly. Many men sought attention for minor wounds because, first, they now realized the danger of inadequate treatment, and, secondly, they knew that they could get time off from their work and avoid getting serious infections, such as perhaps they had suffered before. Dr. Paton also pointed out that the injection of tetanus antiserum was frequently required. If a man came from some distance out of town and was unable to attend regularly, his medical attendant had to decide whether it would be better to admit the man to hospital. There was often considerable risk in allowing a man to return home, where he could not obtain proper attention. Therefore men in the country were admitted to hospital for the treatment of injuries that would not necessitate hospital treatment in the city.

Dr. R. O. Williams said that the medical practitioner had to see that a minor injury did not become a major; therefore he sent people to hospital to be sure that treatment would be carried out efficiently. Also, rural workers worked longer hours than people in the city and they were subject to all sorts of minor injuries.

Dr. A. G. Brydon said that rural workers seemed to be peculiarly susceptible to a low-grade type of sepsis, and it was frequently necessary to send them to hospital for either the treatment or the prevention of sepsis.

Dr. J. C. Storey and Dr. A. M. Davidson also spoke.

Food Relief Certificates.

Dr. E. H. M. Stephen drew attention to the forms of certificate for special food relief that had recently been

issued. When prescribing special food for relief workers or their dependants it was necessary for the medical practitioner to certify that he had examined the patient on the day of prescribing.

Dr. G. N. M. Aitkens pointed out the difficulties in the way of examining the patient every time a certificate was required. He expressed the opinion that, if the Government demanded examination, it should be prepared to pay for it.

Luncheon.

The Council of the New South Wales Branch entertained the delegates at luncheon at the University Club.

NOMINATIONS AND ELECTIONS.

The undermentioned have been elected members of the New South Wales Branch of the British Medical Association:

Lindsay, William Edward, M.B., B.S., 1936 (Univ. Sydney), Balmain Hospital, Balmain.
Millard, Philip Thornton, M.B., 1933 (Univ. Sydney), Women's Hospital, Crown Street, Sydney.
Castell-Brown, Jean, M.B., B.S., 1936 (Univ. Sydney), 24, Edgar Street, Chatswood.
Maclean, James Short, M.B., B.S., 1928 (Univ. Sydney), Corina, Springfield Avenue, Potts Point.

Correspondence.

RODENT ULCER.

Sir: In Professor William Boyd's text-book of pathology, the book recommended to the medical students at our university, there is the following information:

> Exposure to sunlight appears to be a causal factor. In Australia, where the light is very strong and the humidity very low, the disease is extremely common. As many as fifty cases a day may be seen in out-patient departments at Sydney.
>
> The conditions in Australia are peculiar, for it is a country with a tropical sun in which there is nothing but white labour. In other tropical countries those who are continually exposed to the brilliant glare have coloured (protected) skins.

It would be interesting to hear if our surgeons and skin men agree with this.

Yours, etc.,
Alfred E. Finckh.

227, Macquarie Street,
Sydney,
October 9, 1936.

PINK DISEASE.

Sir: I noticed that during the discussion on the nature and treatment of pink disease, Dr. Boyd Graham asked for reports on the result of feeding sufferers from this disease with a diet of raw meat and raw egg.

This disease is somewhat rare, but an ordinary general practitioner like myself encounters one or two cases of it annually. For the past twelve years I have found the infants immediately improve when milk is almost eliminated from their diet and they are fed on raw or lightly cooked meat, liver, egg, sieved vegetables, and stewed and raw fruit. In three or four days the babies become less irritable, and after a week they gain in weight rapidly and continuously. This diet agrees even with infants of six months of age, and at eight months they are sitting up to a three-course meal.

I have one child eight months of age under treatment now. She had been ill, with all the usual symptoms, for two months, and ten days ago was flabby, miserable, could not sit up, had red desquamating hands and feet, and cried when handled. Her motions were loose, pale green in colour, and contained curds and mucus. She was on the usual cow's milk mixture for her age. After a week on the changed diet, with the addition of "Ostelin", three minims three times a day, the child was already much improved. She was taking the meat, egg and vegetable eagerly and was having only one brown digested motion daily. She voluntarily handled articles for the first time for two months, ceased to whine, and her muscles were not so tender.

As a rule these children come to me when they have been ill for two months, but one boy, aged eight months, who came under my care a fortnight after the commencement of his illness, was perfectly well six weeks after his diet had been changed.

From my experience I would say that pink disease is caused by some vitamin deficiency; if it was caused by a virus the improvement shown with a changed diet and the addition of "Ostelin" could not possibly be so marked and so consistent.

Yours, etc.,
Ellen Kent Hughes.

Armidale,
New South Wales,
October 13, 1936.

ASTHMA AND TUBERCULOSIS.

Sir: Asthma has been recognized for many years as one of the results of tubercular infection in a person who has a certain type of resistance.

Antonio Fontes, of Rio de Janeiro, states: "We believe that in the great majority of cases the ultra-virus exists in the lymphatic system and what has been called nervous or essential asthma is caused by it. The term 'tubercular asthma' should be limited to cases of bacilliferous bronchitis."

I refer those who may be interested in the matter to the writings of Fontes, the discoverer of the ultra-virus.

Yours, etc.,
J. Morris Roe.

Victory Chambers,
Queen Street,
Brisbane,
October 20, 1936.

MANIPULATIVE SURGERY.

Sir: As one who daily sees cases of minor injuries that have been mishandled, may I suggest that every reader of your paper should read carefully the excellent papers and discussion that appeared in your journal on October 17; also two small books by Marlin and Fisher are very helpful. May I emphasize the great importance to health in advancing years of a proper posture and a "loose" spinal column—the main secret of the osteopath's success.

Yours, etc.,
W. Kent Hughes,
Medical Officer,
Tramways Board, Melbourne.

October 20, 1936.

TUBE LOST IN AN EMPYEMA CAVITY.

Sir: In the issue of the journal of the seventeenth instant a letter is published from Dr. Roseby, of Boggabri, reporting the failure of X ray examination to demonstrate a drainage tube in the chest.

With good X ray apparatus and correct technique it should be possible to demonstrate a rubber tube in any part of the body.

If fluoroscopy was employed there would be practically no chance of demonstrating the tube, and with small types of apparatus it would be quite easy to miss a tube by radiography unless the apparatus was powerful enough to obtain a fractional second exposure of the chest (this is probably the cause of failure in this case).

Many country centres fail to get good X ray films because of the bad line supply, but the majority of bad results is due to failure to keep film supply and developer fresh.

Films should never be used after the expiry date (marked on box), and developer should be changed at least every three weeks, whether films have been developed in it or not.

Country hospitals which need advice on their X ray films or which seek expert interpretation of their unusual films have only to communicate with the Hospitals Commission and this service will be supplied.

Yours, etc.,

185, Macquarie Street, Sydney,
October 19, 1936.

J. G. Edwards.

University Intelligence.

THE UNIVERSITY OF SYDNEY.

A meeting of the Senate of the University of Sydney was held on October 12, 1936.

Professor Keith Inglis, who was recently appointed to succeed Professor Welsh in the Chair of Pathology, was welcomed by the Chancellor (Sir Mungo MacCallum) and introduced to the Fellows.

On the recommendation of the Post-Graduate Committee in Medicine, it was resolved to confer the *ad eundem* degree of Doctor of Medicine (M.D.) in 1937 upon Professor Jonathan Meakins. Professor Meakins is the Physician-in-Chief at the Royal Victoria Hospital, Montreal, and Professor of Medicine in the Magill University. He was formerly Professor of Therapeutics in the University of Edinburgh. He has occupied distinguished positions in learned medical societies, both in Canada and in the United States, including the presidency of the American Medical Association. Professor Meakins is coming to Australia next year, at the invitation of the New South Wales Post-Graduate Committee in Medicine, to deliver lectures on behalf of the committee.

Permission was given to hold the Ninth Triennial Conference of the Australian Dental Association at the University in August, 1937.

The Dean of the Faculty of Medicine reported that the Royal Australasian College of Surgeons had donated the sum of £100 *per annum* for three years towards the funds provided for the fellowships in urology.

The following appointments were made: Mr. J. M. Somerville, B.Sc., Demonstrator in Physics; Mr. W. J. Lawrence, B.Sc., Acting Lecturer in Physiology.

The following members of the professoriate have been appointed as the delegates of the University to the Conference of Australian Universities to be held in Adelaide in February, 1937: Professor Sir Henry Barraclough, Professor H. Priestley, Professor F. A. Todd.

The following recommendations from the Faculty of Medicine were adopted:

1. The examination in anatomy and physiology in the second year to take place, as usual, at the end of the second year.

2. The examination for third year anatomy and physiology to commence in the last week of Trinity term.

3. The third degree deferred examinations in anatomy and physiology to be held in February or March of the fourth year and to be completed well before the beginning of Lent term.

4. The examination in pharmacology to be held in March, before the beginning of Lent term of the fourth year.

5. The examinations in pathology and bacteriology to be held during the last fourteen days of Trinity term, and medicine, surgery and other lectures to be omitted during this period. Deferred examinations in pathology, bacteriology and pharmacology to be held in December of the fourth year.

Proceedings of the Australian Medical Boards.

NEW SOUTH WALES.

The undermentioned have been registered, pursuant to the provisions of the *Medical Act*, 1912 *and* 1915, of New South Wales, as duly qualified medical practitioners:

Davies, Eric James, M.B., B.S., 1931 (Univ. Melbourne), Queensland.

Godfrey, Margaret Ann Holst, L.R.C.P., L.R.C.S., 1936 (Edinburgh), L.R.F.P.S., 1936 (Glasgow), Sydney Sanitarium, Fox Valley Road, Wahroonga.

Tymms, Albert Oscar Vincent, M.B. *et* Ch.B., 1916 (Univ. Melbourne), 25, James Street, Manly.

Matthews, George Pengwerne, L.R.C.P., L.R.C.S., 1933, L.R.F.P.S., 1933 (Glasgow), Mudgee.

Rolph, William Henry, M.B., B.S., 1935 (Univ. Melbourne), Women's Hospital, Crown Street, Sydney.

Serjeant, Brian Andrew, M.B., B.S., 1925, M.D., 1936 (Univ. Melbourne), Waterfall Sanatorium, Waterfall.

NOTICE.

We have been asked by the Chairman of the Bureau of Human Heredity, of 115, Gower Street, London, W.C.1, to publish the following notice:

Bureau of Human Heredity.

The object of this Bureau is collection on as wide a scale as possible of material dealing with human genetics. Later, the tasks of analysis of material and distribution of the information available will be added.

The Bureau is directed by a Council representing medical and scientific bodies in Great Britain. It is affiliated to the International Human Heredity Committee, which insures cooperation in all areas where research is proceeding.

The Council would be grateful to receive all available material from institutions and individuals, furnishing well-authenticated data on the transmission of human traits whatever these may be. Pedigrees are particularly desired; twin studies and statistical researches are also relevant. As research workers and others who send in material may in some cases wish to retain the sole right of publication (or copyright) those who so desire are asked to accompany their material with a statement to that effect.

Material should be given with all available details in regard to source, diagnostic symptoms and the name and address of the person or persons who vouch for accuracy. All such details will be regarded as strictly confidential.

Reprints of published work would be most acceptable. Further, many authors when publishing material may also have collected a number of pedigrees which they have been unable to reproduce in detail. It is the object of the Council that such records, by being included in the clearing house, should not be lost.

Those wishing for a copy of the Standard International Pedigree Symbols may obtain one from the office.

Announcements in regard to the services undertaken by the Bureau will be published from time to time.

Chairman: R. Ruggles Gates.

Executive Committee: R. A. Fisher, J. B. S. Haldane, E. A. Cockayne, J. A. Fraser Roberts, L. E. Halsey (Hon. Treasurer), C. B. S. Hodson (Hon. General Secretary).

Obituary.

HERMAN FEMOR LAWRENCE.

We regret to announce the death of Dr. Herman Femor Lawrence, which occurred on October 20, 1936, at South Yarra, Victoria.

ARTHUR YOUL NANKIVELL.

We regret to announce the death of Dr. Arthur Youl Nankivell, which occurred on October 21, 1936, at Kerang, Victoria.

Diary for the Month.

Nov. 2.—New South Wales Branch, B.M.A.: Organization and Science Committee.
Nov. 3.—Tasmanian Branch, B.M.A.: Council.
Nov. 4.—Western Australian Branch, B.M.A.: Council.
Nov. 4.—Victorian Branch, B.M.A.: Branch.
Nov. 5.—South Australian Branch, B.M.A.: Council.
Nov. 6.—Queensland Branch, B.M.A.: Branch.
Nov. 10.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
Nov. 10.—Tasmanian Branch, B.M.A.: Branch.
Nov. 13.—Queensland Branch, B.M.A.: Council
Nov. 17.—Tasmanian Branch, B.M.A.: Council.
Nov. 17.—New South Wales Branch, B.M.A.: Ethics Committee.
Nov. 18.—Western Australian Branch, B.M.A.: Branch.
Nov. 19.—New South Wales Branch, B.M.A.: Clinical Meeting.
Nov. 24.—New South Wales Branch, B.M.A.: Medical Politics Committee.
Nov. 25.—Victorian Branch, B.M.A.: Council.
Nov. 26.—South Australian Branch, B.M.A.: Branch.
Nov. 26.—New South Wales Branch, B.M.A.: Branch.
Nov. 27.—Queensland Branch, B.M.A.: Council.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser", pages xviii, xix, xx.

Government of Tonga: Medical Officer.
Infectious Diseases Hospital, Fairfield, Victoria: Consultant Surgeon.
Launceston Public Hospital, Launceston, Tasmania: Resident Medical Officer.
Marrickville District Hospital, Marrickville, New South Wales: Resident Medical Officer.
Mooroopna Hospital, Mooroopna, Victoria: Resident Medical Officers.
Mount Mulligan District Hospital, Queensland: Medical Officer.
Perth Hospital, Perth, Western Australia: Resident Registrars.
St. George District Hospital, Kogarah, New South Wales: Pathologist.
The Brisbane and South Coast Hospitals Board, Queensland: Honorary Officers.
Victorian Eye and Ear Hospital, Melbourne, Victoria: Resident Medical Officers.

Medical Appointments: Important Notice.

Medical practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCHES.	APPOINTMENTS.
New South Wales: Honorary Secretary, 135, Macquarie Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company Limited. Phœnix Mutual Provident Society.
Victorian: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association, Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
Queensland: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Brisbane Associate Friendly Societies' Medical Institute. Proserpine District Hospital. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY Hospital are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.
South Australian: Secretary, 207, North Terrace, Adelaide.	All Lodge appointments in South Australia. All Contract Practice Appointments in South Australia.
Western Australian: Honorary Secretary, 205, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
New Zealand (Wellington Division): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Editorial Notices.

Manuscripts forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to The Medical Journal of Australia alone, unless the contrary be stated.

All communications should be addressed to the Editor, The Medical Journal of Australia, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2.)

Members and subscribers are requested to notify the Manager, The Medical Journal of Australia, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such a notification is received within one month.

Subscription Rates.—Medical students and others not receiving The Medical Journal of Australia in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and booksellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rates are £1 for Australia and £2 5s. abroad *per annum* payable in advance.